Atlantic States Marine Fisheries Commission

American Lobster Management Board

February 3, 2026
9:00 – 11:00 a.m.

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 *(R. Zobel)* — 9:00 a.m.

2. Board Consent — 9:00 a.m.
   - Approval of Agenda
   - Approval of Proceedings from October 2025

3. Public Comment — 9:05 a.m.

4. Consider Annual Data Updates *(T. Pugh, C. Truesdale)* — 9:15 a.m.
   - Jonah Crab Offshore Southern New England Indicators
   - American Lobster Indicators and Recruit Index for Gulf of Maine/Georges Bank (GOM/GBK) Stock

5. Technical Committee Report on Board Tasks *(T. Pugh)* **Possible Action** — 9:45 a.m.
   - Guidance on Management Strategy Evaluation for GOM/GBK
   - GOM/GBK Fishery Projections with Original Addendum XXVII Gauge Increases

6. American Lobster Advisory Panel Report *(C. Starks)* — 10:15 a.m.

7. Reports from Gulf of Maine States on Industry Surveys and Meetings *(C. Wilson, R. Zobel, R. Glenn)* — 10:30 a.m.

8. Update on Request for Information for Alternative Gear Marking Framework *(A. Murphy)* — 10:50 a.m.

9. Review and Populate American Lobster Advisory Panel Membership *(T. Berger)* **Action** — 10:55 a.m.

10. Other Business/Adjourn — 11:00 a.m.

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

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

MEETING OVERVIEW

American Lobster Management Board
February 3, 2026
9:00 – 11:00 a.m.

Chair: Renee Zobel (NH) Assumed Chairmanship: 03/25	Lobster Technical Committee Chair: Tracy Pugh (MA) Jonah Crab Technical Committee Chair: Corinne Truesdale (RI)	Law Enforcement Committee Rep: Rob Beal (ME)
Vice Chair: John Maniscalco (NY)	Lobster Advisory Panel Chair: Grant Moore (MA) Jonah Crab Advisory Panel Chair: Sonny Gwin (MD)	Previous Board Meeting: October 27, 2025
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NMFS, NEFMC (12 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 2025

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. Consider Annual Data Updates (9:15-9:45 a.m.)

Background

- An annual Data Update process between American lobster stock assessments was recommended during the 2020 stock assessment to more closely monitor changes in stock abundance. The objective of this process is to present information—including any potentially concerning trends—that could support additional research or consideration of changes to management. Data sets updated during this process are generally those that indicate exploitable lobster stock abundance conditions expected in subsequent years and include: young-of-year settlement indicators, trawl survey indicators, and ventless trap survey sex-specific abundance indices.
- This is the first Lobster Data Update after the 2025 Stock Assessment and includes the addition of 2024 data. Indicator status (negative, neutral, or positive) was determined relative to the percentiles of the stock assessment time series **(Briefing Materials).**
- Following review and acceptance of the first Benchmark Stock Assessment for Jonah crab in October 2023, the Technical Committee (TC) met to develop recommendations on possible management measures or other options to address concerns about substantial uncertainty

about stock status and some disconcerting data trends noted in the assessment and peer review. The TC did not recommend any management action, but did recommend conducting annual updates of indicators selected during the stock assessment for the Offshore Southern New England (OSNE) stock, the stock supporting the majority of coastwide landings, to identify any concerning trends between assessments.

- This is the second Data Update of the OSNE stock indicators. Indicator status (negative, neutral, or positive) was determined relative to the percentiles of the stock assessment time series (i.e., data set start year through 2023) **(Briefing Materials).**

Presentations

- Lobster Data Update by T. Pugh
- Jonah Crab Data Update by C. Truesdale

5. Technical Committee Report on Board Tasks (9:45-10:15 a.m.) Possible Action

Background

- After considering the findings of the 2025 stock assessment, the Board tasked the TC with several items to inform potential management responses.
- The Board tasked the TC with creating a combined index for tracking recruit abundance in GOM/GBK as part of future data updates to the Board **(Briefing Materials).**
- The Board requested the TC update and review the process for conducting an MSE for the GOM/GBK stock **(Briefing Materials).**
- The Board directed the TC to estimate the benefits to the GOM/GBK fishery that would have resulted from implementing the minimum gauge size increases under Addendum XXVII that were ultimately repealed.

Presentations

- Technical Committee Report by T. Pugh

6. Advisory Panel Report (10:15-10:20 a.m.)

Background

- The Advisory Panel met on January 12, 2026 to review the 2025 Benchmark Stock Assessment and Peer Review Report and provide input to the Management Board on the assessment findings and state of the fishery **(Briefing Materials).**

Presentations

- Advisory Panel Report by C. Starks

7. Reports from Gulf of Maine States on Industry Surveys and Meetings (10:30-10:50 a.m.)

Background

- Concurrent with the implementation of Addendum XXXII, the Gulf of Maine states agreed to work with the lobster industry to develop management strategies to ensure the long-term health of the resource and the coastal communities that it supports.
- The Board requested Maine and New Hampshire provide updates on industry meetings and possible alternative management measures to those of Addendum XXVII at each quarterly meeting.
- Maine, New Hampshire, and Massachusetts have completed industry meetings and surveys to gather input on management approaches.

Presentations

- Update from Gulf of Maine States on Industry Meetings by C. Wilson, R. Zobel, and B. Glenn

8. Update on Request for Information on Alternative Gear Marking Framework (10:50-10:55 a.m.)

Background

- The New England and Mid-Atlantic Fishery Management Council (Councils) are developing a joint alternative gear marking framework adjustment to provide alternative fixed gear surface marking requirements in all New England and Mid-Atlantic Fishery Management Council fishery management plans. This regulatory modification would allow for the use of fixed gears without a persistent buoy line (i.e., on-demand gear.
- The Councils met in September and October 2025 and each agreed to postpone further action on the Framework until additional information on ropeless gear and visualization technology, as solicited through a NMFS Request for Information, is available to inform stakeholder input and Council decision-making.

Presentations

- Update on Request for Information for the Joint New England and Mid-Atlantic Fishery Management Council Alternative Gear Marking Framework by A. Murphy

9. Review and Populate Advisory Panel Membership (10:55-11:00 a.m.) Action

Background

- New Jersey submits a new nomination to the American Lobster Advisory Panel: Joe Fiorentino, a recreational diver from Pennsylvania (**Briefing Materials**).

Presentations

- Advisory Panel Nominations by T. Berger

Board Actions for Consideration at the Meeting

- Approve Advisory Panel nomination

10. Other Business/Adjourn (11:00 a.m.)

American Lobster and Jonah Crab TC Task List

Activity level: Medium

Committee Overlap Score: Medium

Committee Task List
Lobster TC • Board tasks responding to 2025 stock assessment findings • August 1, 2026: Annual Compliance Reports Due • Fall 2026: Annual data update of lobster abundance indices *Jonah Crab TC* • August 1, 2026: Annual Compliance Reports Due • Fall 2026: Annual data update of Jonah crab abundance indices

TC Members

American Lobster: Kathleen Reardon (ME), Joshua Carloni (NH), Jeff Kipp (ASMFC), Justin Pellegrino (NY), Corinne Truesdale (RI), Chad Power (NJ), Tracy Pugh (MA, Chair), Matthew Jargowsky (MD), Somers Smott (VA), Renee St. Amand (CT), Burton Shank (NOAA), Allison Murphy (NOAA)

Jonah Crab: Corinne Truesdale (RI, Chair), Derek Perry (MA), Joshua Carloni (NH), Chad Power (NJ), Jeff Kipp (ASMFC), Allison Murphy (NOAA), Kathleen Reardon (ME), Justin Pellegrino (NY), Burton Shank (NOAA), Matthew Jargowsky (MD)

Lobster Stock Assessment Subcommittee Members: Tracy Pugh (MA, TC Chair), Conor McManus (RI), Joshua Carloni (NH), Kathleen Reardon (ME), Burton Shank (NOAA), Jeff Kipp (ASMFC)

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

AMERICAN LOBSTER MANAGEMENT BOARD

The Hyatt Place Dewey Beach
Dewey Beach, Delaware
Hybrid Meeting

October 27, 2025

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 CONTENT

INDEX OF MOTIONS

ATTENDANCE

Board Members

Carl Wilson, ME (AA)
Steve Train, ME (GA)
Rep. Allison Hepler, ME (LA)
Renne Zobel, NH (AA)
Doug Grout, NH (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)
Dan McKiernan, MA (AA)
Raymond Kane, MA (GA)
Sarah Peake, MA, proxy for Rep. Armini (LA)
Jason McNamee, RI (AA)
David Borden, RI (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)
Matthew Gates, CT (AA)
Robert LaFrance, CT, proxy for B. Hyatt (GA)
John Maniscalco, NY, proxy for M. Gary (AA)
Scott Curatolo-Wagemann, NY, proxy for E. Hasbrouck, NY (GA)
Joe Cimino, NJ (AA)
Jeff Kaelin, NJ (GA)
Adam Nowalsky, NJ, proxy for Sen. Gopal (LA)
John Clark, DE (AA)
Roy Miller, DE (GA)
Michael Luisi, MD, proxy for L. Fegley (AA)
Joe Grist, VA, proxy for J. Green (AA)
Mike Pentony, NMFS

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

Ex-Officio Members

Tracy Pugh, Technical Committee Chair
Rob Beal, Law Enforcement Committee Rep.

Staff

Bob Beal
Toni Kerns
Tina Berger
Madeline Musante
Caitlin Starks
Tracy Bauer
James Boyle
Chelsea Tuohy
Emilie Franke
Katie Drew
Jeff Kipp
Samara Nehemiah

The American Lobster Management Board of the Atlantic States Marine Fisheries Commission convened in the Ballroom East/West via hybrid meeting, in-person and webinar; Monday, October 27, 2025, and was called to order at 2:45 p.m. by Chair Renee Zobel.

CALL TO ORDER

CHAIR RENEE ZOBEL: Good afternoon, welcome back from lunch for some of you. I am going to call this meeting to order of the American Lobster Board, and I'm going to turn it over to Toni for some housekeeping.

MS. TONI KERNS: Thank you, Madam Chair. First of all, I just want to make sure that the Board and room knows that we are being filmed this afternoon. Then also for the Commissioners that are online, we have got Curatolo Wagemann, John Maniscalco, and Mike Pentony; and I apologize if I have missed anybody else.

CHAIR ZOBEL: Thank you, Toni. If everybody could take their conversations outside of this room that would be very helpful, thank you.

APPROVAL OF AGENDA

CHAIR ZOBEL: With that we'll get rolling on the first agenda item this morning, or this afternoon, which is the approval of the agenda. Are there any changes to the agenda? John Clark, go ahead.

MR. JOHN CLARK: Just wanted to add under Other Business the issue about the timing of the season opening for LCMA5 that there was a letter in the materials from Sonny Gwin about that.

CHAIR ZOBEL: Okay, we will add that to the official agenda, any other changes? We will move forward with the agenda as amended.

APPROVAL OF PROCEEDINGS

CHAIR ZOBEL: The next is approval of proceedings from the August 2025 meeting. Does anyone have any changes or edits they need to bring forth from those proceedings? Seeing none we'll consider the proceedings approved.

PUBLIC COMMENT

CHAIR ZOBEL: The next item on the agenda is public comment for items that are not on the agenda. Is there anyone in the room or online who would like to make a public comment on an item that we will not be discussing today on our agenda. Yes, in the back, come right up to the public mic, state your name and affiliation, please.

MR. SONNY GWIN: Thank you very much, Madam Chair. My name is Sonny Gwin, I am the owner and operator of the fishing vessel Skilligalee, been fishing for almost 50 years. I wrote the letter for changing our seasons, and I just want to touch base with you all to hopefully we can get these seasons changed to help out our fishing target. We would like to change it from March 9 to March 24, and if everybody has read the letter in the briefing book that we sent out, that is in your briefing book, excuse me. Anyway, I would like to get it on the agenda and hopefully we can get the season changed.

CHAIR ZOBEL: Thank you, Sonny, we have added that to the official agenda today. Is there any other public comment that is about something not on the agenda? Seeing no other public comment.

CONSIDER 2025 AMERICAN LOBSTER BENCHMARK STOCK ASSESSMENT

CHAIR ZOBEL: We're going to move on to Considering the 2025 American Lobster Benchmark Stock Assessment.

PRESENTATION OF STOCK ASSESSMENT REPORT

CHAIR ZOBEL: We'll start with a presentation of the Stock Assessment Report by Tracy Pugh.

DR. TRACY PUGH: This is a little bit long, it is actually kind of difficult to condense the giant stock assessment into a presentation, so bear with me. I will go through some of these sections a little bit more quickly than others, but if you have questions, we can always come back and take a closer look at some of the screens.

We've made no changes to the stock definitions for this assessment, so we are continuing with the Gulf of Maine/Georges Bank as a combined stock unit and the Southern New England stock. We do pay attention to the sub-stock dynamics, so some of the results I will show will break down Gulf of Maine and Georges Bank into the sub-stock units.

The stock boundaries align with the NOAA Fisheries Statistical Reporting Areas and this is the resolution that we have the landings data and the effort data for, which is why that is the spatial resolution. As you all know, there are 7 Lobster Conservation Management Areas or LCMAs, they are shown in the colors on the map, they are right here.

These do not align with the stock boundaries or the statistical areas. These areas were defined in the late 1990s, with the intention being to try to account for some of the localized industry dynamics. Butt the stock assessment itself focuses and operates on the stock units and the NOAA Fisheries Stat area.

With each of these stock assessments we do a fairly comprehensive review of the recent literature, to make sure that we are up to date on recent research. The entire Section 2 has been updated to incorporate recent literature. A couple of highlights with this, there were some minor updates to the size of 50% maturity for both stocks.

For the Gulf of Maine/Georges Bank, combined stock this results in an 86.2-millimeter size at 50% maturity. That is roughly, just a little bit over 3 and 3/8 of an inch carapace length. For Southern New England the size at 50% maturity is 78.9 millimeters, which is approximately 3 and 1/8 of an inch carapace length.

We did some comprehensive work on growth with this assessment, thanks to some external researchers, Dr. Nesslage and Dr. Wilbur. Most of that work is presented in Appendix 1 of the document. For the base case what this means is that we have some updates to the molt increment data that go into the growth matrix.

We do not have any new data for the molt probabilities, but we did find and correct a minor error in the Southern New England molt probabilities. We have also taken a look at that, to make sure that that didn't have any impacts. The impacts for that correction were very minor and only happened at very large sizes. One of the aspects of this new growth work was the development of a new growth model. We have not quite used that in the base case just yet, but what we did do is use that to test some sensitivities around growth. The results coming out is that indicates that the scale of the abundance estimates is sensitive to growth.

However, the abundance trends over time are very robust to any assumptions we make about growth. For natural mortality, the biggest change we made in that is how we do in Southern New England natural mortality. You can see the graph in the upper right of the screen here is an illustration of this.

Essentially, the baseline, natural mortality started out at 0.15, and then we bumped this up in 1998 to 0.285. In the past assessment it stayed at that higher level, but for this assessment what we've done is ramp that down over time, back to the 0.015 baseline. The rationale behind this being that we think that the remaining stock in Southern New England has sort of redistributed itself into deeper waters offshore, which is exposing them less to the inshore environment, where the temperature conditions have been particularly detrimental.

All right, so we also ran a number of sensitivities around our alternate natural mortality for both stocks, and again the trends over time are robust to the assumptions that we make around the natural mortality. For the environment and productivity, again this is something that we've paid a lot of attention to, particularly over the last couple of assessments.

In terms of the temperature, we are seeing a continued divergent trends in the thermal conditions being experienced by each of the stocks. For the Gulf of Maine particularly, the inshore portion we're seeing improving temperature conditions that are conducive to growth and settlement. However, in the Southern New England stock, particularly inshore again, we are seeing decreases in the thermal suitability.

The plot in the upper right of the screen here is essentially showing that over the decades the inshore Southern New England environment is staying hotter for longer and it's getting much hotter. We have looked into linkages between Calanus finmarchicus, which is a copepod and young of year lobsters, particularly in the Gulf of Maine. Calanus is a major food resource for larval lobster in the Gulf of Maine, and we are seeing correlations between lobster settlement and Calanus indices.

In particular we've seen decline in densities of Calanus that have happened since the 2000s, which is what is shown in the graph in the lower right here. The other thing we're looking into is that we're starting to see a mismatch in the seasonal timing, so the Calanus and the larval lobsters are not overlapping in time and space like they have in previous years.

Essentially, the larvae are not there at the same time as their food resource. Ultimately, what we're seeing with the Gulf of Maine is some conflict in between these environmental conditions, where we have thermal conditions that are good for growth and good for settlement, but we have these issues with larval survival that are coming from these issues with their food resources. I'm going to switch and spend a couple minutes talking about landings. This graphic shows landings data by state, going back to the 1950s. We do not have the resolution of the data to break it up by sub stock going back that far, but this does provide a little bit of a historical context when you look at it by state back to 1950. The top row, Maine, New Hampshire, Massachusetts, the middle row is Rhode Island, Connecticut and New York, and the bottom graph is New Jersey south combined.

Just note that the Y axis on all of these graphs differ. For the top three states that are fishing predominantly in the Gulf of Maine, you can see they show a very similar increase in landings over time, and particularly in the Maine graph, if you can see the recent downtrend in landings. For the three middle graphs and then the New Jersey south graph, you can see that they increased over time and peaked in the late 1990s, followed by the dramatic declines.

States are all focused primarily on the Southern New England stock, and for New Jersey we can actually see a little bit of a peak in the late '70s, followed by another one, probably the late '80s, early '90s, and then the declines over time. We looked just at the assessment timeframe, that is from 1982 through 2003, and now we can partition the landings by sub stock.

The black line is the Gulf of Maine stock, the gray line is Southern New England, and the dashed line is the Georges Bank Stock. As you can see, most of the U.S. landings are coming from the Gulf of Maine sub stock. This is particularly coming from the inshore statistical areas in the Gulf of Maine.

In particular, statistical area 512, which is mid coast Maine has become increasingly more dominant through the 2000s, such that in recent years it is seeing almost 50% of the catch from the entire Gulf of Maine is coming from that one statistical area. We are seeing some spatial shifts to the east in the Georges Bank sub stock area.

The Georges Bank landings have been shifting more towards Statistical Area 562 in recent years. We are seeing some declines in Area 521, which is the inshore Georges Bank/Outer Cape Cod area. Just a note on the timing of when the increase in landings that has happened in Georges Bank. We're seeing that particularly in the summer and the fall seasons.

Overall, Southern New England landings are at record lows, and if we take and break apart the Southern New England landings by inshore and offshore, this graph is the dotted line is the inshore statistical areas, the solid line is the offshore ones. You can see that the dramatic increase and then decline happened in those inshore areas.

The inshore areas have been kind of stable and low since about 2012 through current. However, the offshore area, which was a little bit stable from 2002 through about 2015. The recent decade offshore we have seen declining landings. This is new for this assessment. We had some external assistance from a University of Maine socioeconomics group, with Dr. Stow and Dr. Barnum working on this.

The top graph here is looking at the active licenses for each of our sub stocks, and you can see that active participation has declined in all of these sub stocks. The Gulf of Maine was looking at about a 30% decline. Georges Bank is looking at about a 57% decline, and for Southern New England we're looking at about an 86% decline, from around 1990 to current. The bottom portion of the screen is essentially showing you the proportion of landings that each active permit holder is seeing. The take home message here is the remaining permit holders are increasing their catch share, so they are seeing an increase in the amount of landings that they are catching.

This proportional increase of the share is lower in the Gulf of Maine. For the Gulf of Maine, it's about a 44% increase. Georges Bank we've seen about 134% increase, and in Southern New England those remaining are seeing about a 600 plus increase in the landings per permit holder. The analyst noted that these changes have some implications for access, equity and the fleet resilience.

All right, talk a little bit about the assessment model. As you all probably know, we use the length-based model for the stock assessment lobster. It operates on quarterly time steps. The data that we provide to the model include life history characteristics such as growth, natural mortality and maturity.

We provide commercial catch information, which is the weighted catch, the size structure and the sex ratio of the catch. For survey data we have both bottom trawl data and ventless trap surveys. These survey data are providing abundance trends, the length and sex of the survey catch, and then we have temperature-based catchability covariants that go along with these surveys.

Commercial selectivity is provided, and this essentially is gear retention information, so what size of lobsters are retained by the commercial fishing gear, and then the discards from the biosampling. The state agencies and the CFRF study fleet data describe information on the discard of sub legal's, of egg bearing females and of v-notched females.

We provide a number of recruit covariates and a note here is that the terminal year for status determination is 2023. We do use some preliminary 2024 data to help anchor the terminal year estimates, but the status determination will be based on a terminal year of 2023. The assessment model outputs include some diagnostics, which look at goodness of fit.

Then also an analysis that was recommended from the 2020 Peer Review, it's called the Jitter Analysis. These essentially tell us things about how good a job the model is doing. The model output and estimate of annual recruitment, and this is to the model size bins of 53 plus. There are also estimates of abundance and spawning stock biomass.

There is a population size composition and importantly, the model estimates reference abundance, which is all lobsters that are 78 millimeters and above, and an estimate of effective exploitation. We also look at a number of what we call model-free indicators, and these are essentially more straightforward just data.

We use these as sort of a series of common-sense indicators, with the idea being to corroborate the model results and provide additional information on stock health. The focus here is on trends, so similar to the model we're looking at change over time. This analysis is very similar to a traffic light approach, where we have essentially positive, neutral and negative for most of these indicators. We've switched over with these to using a graphical presentation, and you guys will be familiar with this presentation, it's the same type of a graph as what we've been providing in the annual data updates. The focus here is if you look at the individual symbols in any of these graphics. The black triangle is a negative or a bad status, the open circle is a positive or a good status, and the gray square is a neutral status.

The time series that we use to evaluate these is essentially 1982 through 2018, and then the more recent five years 2019 through 2023. The average of that is what we use to describe the status. These are evaluated at the sub-stock level. We'll go through some results for Gulf of Maine/Georges Bank.

I'm going to go through the model results first, and then talk about a couple of the model pre-indicators. The graphics here upper left is the reference abundance, and the bottom left is recruitment. In both of these graphs the solid black line is the sexes combined. The dark gray is the females and the light gray is the males.

Then the bottom right graph is the female spawning stock biomass. You can see from these that we have an increasing abundance since around 1990 to a peak in 2018. Since that peak we've seen declines of about 34% to levels that are similar to those that we saw around 2010 or so. Spawning stock biomass has followed a very similar trajectory, and the recruits are also showing a similar pattern over time.

With the recruits you do note that there is a little bit more interannual variation, and the recruits did peak a couple years earlier around about 2016. For effective exploitation, again the black line here is combined sexes. The light gray is males the dark gray is females. Effective exploitation is essentially catch divided by reference abundance.

You can see here that exploitation has generally been higher for males than for females. This is due to the extra protections that females received from harvest. Exploitation declined after the highs in early 1980s, after the implementation of some increased minimum legal sizes. Exploitation has been relatively stable around the interannual variation since about 2000.

I say stable and you look at this graph and it looks very jagged, but it's because we've zoomed in extensively on the Y axis. If this were actually showing the full zero to one axis it would not be quite so jagged. We don't provide the model with the stock recruit relationship, but we can estimate one from model outputs.

Then we use this estimate to infer trends about stock productivity. What you're looking at here is essentially an estimate of the stock productivity over time, and the recruitment years on the X axis there. What it's showing here is that we've seen an overall increase in the productivity of the Gulf of Maine/Georges Bank stock since the 1980s.

Essentially what that means is we're getting higher level of recruits per spawning stock biomass than we previously saw. We do have some recent declines in this productivity from the peak, so the peak was around recruit year 2015, which essentially would have resulted from spawning stock biomass in about 2015, so there is a five-year lag in this. As you can see from the graph, the dashed lines around the solid line represent

uncertainty in this. They are quite broad at the end of this, so we do have a fair amount of uncertainty around the future trajectory of productivity. For some of the model-free indicators, I've just grabbed a couple of pieces of these abundance indicators for the full suite of the abundance indicators please look at Section 5 figures in the assessment document.

What is shown here are spawning stock biomass and recruits for the fall surveys. The top would be the Maine/New Hampshire Survey, the middle ones are from Massachusetts, and the bottom ones are Federal Survey. In general, what the abundance indictors for the Gulf of Maine sub-stock is showing is declines from the peaks.

You can see these declines most clearly if you look at the Maine/New Hampshire Survey, and the status of these has changed. In the previous assessment a lot of these were positive, or all of them were positive, especially in the Maine/New Hampshire Survey. We have seen declines down into either the neutral status or for some of them into the negative status.

Again, check out the full suite of graphs in the document. For the YOY or young of year settlement in the Gulf of Maine, these are the diver-based surveys. If you look at these, essentially generally what we're seeing is lows in the late 1990s that increased to a period of highs during the 2000s.

That was then followed by some low periods in the mid to late 2010s. We have seen improvements in these in the most recent years. Essentially, the status for these is now neutral. That has improved from the 2020 stock assessment, where the 513 west and Area 514 were negative in the previous assessment. This is a good thing we've seen some improvements.

The Georges Bank sub-stock, again I'm just taking one of the abundance indicators as an example here. This is spawning stock biomass. The survey out there is just the federal survey, so I'm showing spring and fall here. In general, the abundance indicators for the Georges Bank sub-stock are mostly positive.

We switch over to relative exploitation indicators for the Gulf of Maine sub-stock. Again, the surveys are, the top row is Maine/New Hampshire, the middle is Massachusetts, the bottom is the Federal survey, spring is on the left, fall is on the right. What you can see here is from the Massachusetts and the Science Center Surveys, relative exploitation remains relatively low, and it has a positive status.

For the Maine/New Hampshire relative exploitation we have seen increases in recent years into the negative status. This is a new one for this assessment, it's recruit dependency. The idea here is describing the percentage of the marketable catch that is essentially one molt away from an illegal size. These data are from the commercial sea sampling data.

The graphic arrangement here is that the top is Maine 511, Maine 512. The middle row is Maine 513, and New Hampshire 513, and the bottom is Massachusetts 514. What we see with this is a consistent and high dependence on new recruits, particularly in the southern Gulf of Maine, so the bottom three graphs. Maine 513, New Hampshire 513 and Mass 514 are particularly high. We have noted some declines in the New Hampshire and the Massachusetts indices here in recent years. Maine 512, which is your upper right graph here, has increased over time, so they have become more recruit dependent over time, and Maine 511, which is the upper left graph is the least recruit dependent area in the Gulf of Maine sub-stock. The status for all of these is negative, except for Maine 511, which is a neutral status.

For Georges Bank the relative exploitation indicator here, again this is the Federal Survey, we're generally seeing a decreasing trend in this over time in both seasons, so this is a positive thing. The terminal status is positive for the Georges Bank sub-stock. For the Georges Bank sub-stock recruit

dependency, the upper left here is Area 521, which is the Outer Cape Cod Area and then the upper right is 562, the bottom left is 526, and then 525.

These data again are from either the sea sampling data conducted by the state agencies, or for the offshore areas this is the CFRF study fleet data. Overall, we see much lower recruit dependency in the Georges Bank sub-stock than we do in the Gulf of Maine. This is indicative of the broader size structure in the Georges Bank sub-stock.

The status for these is neutral in those western statistical areas, so the two graphs on the left, 521 and 526. It is positive for the two eastern statistical areas, so recruit dependence is lowest the further east you go. One of the effort indicators that we pulled out here is for traps. This is max traps fished, so the maximum number of traps that are reported in the water.

These data are just from Maine and Massachusetts, for the Gulf of Maine. Essentially you can see here that around the 2000s we had high values that are negative. But the number of traps in the water has declined over time. Since that peak, the terminal five-year status for this indicator is positive, so traps have declined is actually a good thing.

For Georges Bank that effort indicator, this is just using Massachusetts data because of the long time series. While New Hampshire/Rhode Island both have active vessels in the Georges Bank sub-stock, their censures is a little bit shorter and we have some confidentiality issues with those data. If you look at the time series here, we see a period of relative stability from around the mid-1990s until about 2010 or so, and then we've seen an increase in the number of traps fished in recent years. That increase has changed this into a negative status.

For Southern New England, again I'm going to give the model results first and then some of the indicators. The upper left is the reference abundance, the bottom left is recruitment, and the bottom right is female spawning stock biomass. Again, the black line in the left graphs is the combined sexes.

You can see the increasing abundance from the early 1980s to a peak around 1998, and then we had dramatic declines for several years followed by slower but more steady declines since the early 2000s. Currently reference abundance is at a time series low. Spawning stock biomass followed a very similar pattern, and recruits also followed a similar pattern.

Similar to the Gulf of Maine though, we see more interannual variation in recruit estimates, and the peak for recruits was a couple years earlier than the peak for reference abundance. For exploitation in Southern New England, we have essentially two periods here of relatively stable exploitation. We had a higher period through the early 2000s, and then a lower period since around the mid-2000s or so. This transition coincides with increased minimum legal sizes. Essentially, what happened here is that a higher proportion of the reference abundance is protected after that increase in minimum legal size. The stability here is essentially due to the fishery tending to remove similar proportions of that reference abundance annually, under the same period of management.

As long as the management conditions stay the same, the fleet is removing a similar proportion of the harvestable abundance. For productivity for Southern New England, we can see this increase to the peak for activity, happening around 1996. That would have been recruits produced by spawning stock biomass around the year 1992, so there is about a four-year lag on this in Southern New England.

Since that peak we've seen declines to all-time lows in productivity. If you look at the very end of this graph, if we see that relatively steep decline in productivity over the recent five years. For model free indicators, on the left we have spawning stock

biomass on the right we have recruits. These are all because of the fall surveys.

Again, I just had to take a snapshot of the abundance, so Section 5 graphs will show you all of the rest of them. The surveys here on the top is Massachusetts followed by Rhode Island then Connecticut, then the Federal Survey on the bottom. Nearly all of the Southern New England abundance indicators were negative.

Most of the inshore surveys have been at or below the 25th percentile for the past ten or more years. All of the surveys except for the Massachusetts fall spawning stock biomass have a negative status. Massachusetts fall spawning stock biomass is neutral, but we wanted to note that two of the last three years that SSB index was 0.

For young of year settlement in Southern New England, the top two graphs are diver-based surveys, and the bottom two graphs are larval surveys. You can see the top left is Massachusetts. Massachusetts has seen 0 young of year settlers since about 2015. Rhode Island has been very low in most years since 2016.

We've seen very few larvae detected in the Eastern Long Island Sound Survey since around 2012. The Western Long Island Sound Survey, which is the bottom right, they discontinued that survey in 2012, so we don't have a status for that one. But for the other three the terminal five-year status is negative.

For relative exploitation in Southern New England, these again are the trawl survey indicators, so the top is Massachusetts followed by Rhode Island then Connecticut, then the Federal Survey. On the left is spring and the right is fall. Again, this is landings divided by the survey reference abundance.

Essentially, what we've had to do here is proxy some of these survey values, because they are seeing zero lobsters in the reference size range. When we have to proxy those values, it is hard to see here, but if you look in your document, you'll be able to see little asterisks. It's the annual point that tells you that that is a proxy here, and those tend to make that index spike up. We do have mixed results with these. The Federal fall survey is a positive status. The Federal Spring and the Connecticut spring and fall have a negative status, and Rhode Island and Massachusetts are neutral.

For recruit dependency in Southern New England, again this is the commercial catch-based data from sea sampling or from the CFRF survey fleet. The top left is Massachusetts, top right is Rhode Island and the bottom left is the CFRF data. We again see very high dependence on new recruits. This is somewhat lower in recent years in the Massachusetts and CFRF datasets, so we've seen a little bit of decline here. But the status for all of these is negative.

Inshore is very recruit dependent. For the traps data, again this is a partial dataset, this is using data from Massachusetts, Connecticut and New York. You can see the traps fished have declined dramatically since their peak in the late 1990s, they are now at all-time lows, which is a good thing for traps, so the status here is positive.

Stock status determination; so, the stock status is based on the results of the model, and the status determination is based on the trend-based reference points that we defined using the regime shift analysis of model outputs. In the 2020 assessment we went through this process where we described abundance regimes.

We've redone that analysis and the regimes remain consistent with what was defined in the 2020 assessment. What that means is that there are no changes to the reference points as defined. Our focus here is on reference abundance. We make management recommendations primarily tied to the abundance status determination, because we think that the abundance is more informative than exploitation for understanding stock status.

We do still provide the exploitation status reference point. This acts as an extra safeguard against

sudden increases in exploitation that may not be explained by decreases in the abundance. The stability of the exploitation estimates during periods of really significant changes in abundance and for both stocks, really sort of challenges our ability to understand the populations' response to fishing mortality, and it's because of this that we take the abundance as the primary status determination here.

Those abundance reference points. We defined three of these, two of which are only relevant to the Gulf of Maine/Georges Bank stock. The fishery industry target, which is the highest level, is the 25th percentile of the high abundance regime. The recommended action if we were to fall below this target is that post assessment economic analyses be conducted to provide robust advice on appropriate action to stabilize the fishery and minimize economic harm.

The abundance limit, again just for the Georges Bank/Gulf of Maine combined stock is the median of the moderate abundance regime, and falling below this indicates concerns that the stock's ability to replenish itself is diminished and will worsen if no action is taken. The stock is considered depleted if the three-year average reference abundance falls below the limit. If this happens the SAS recommends management action be taken to halt the decline in abundance. Then the abundance threshold, which is put forward for both stocks is the average of the three highest abundance years during the low abundance regime. This is significant concern about the stock's ability to replenish itself, and that there is potential for stock collapse. The stock is considered significantly depleted if the three-year average reference abundance is below this threshold.

The recommended advice would be significant management action to halt the decline of abundance and increase reproductive capacity and recruitment to the stock, for example a moratorium. The exploitation reference points that we put forward, there are two of these. The first is the target. This is the 25th percentile of exploitation estimates during the current abundance regime.

Fishing mortality is favorable if the three-year average of exploitation is at or below the target. The threshold is the 75th percentile of exploitation estimates during the current abundance regime, and the stock is experiencing overfishing if the three-year average exploitation is above the threshold. The recommendation here would be that they initiate additional research to better understand the cause of the increased exploitation and determine if management action is necessary.

Stock status, for the Gulf of Maine/Georges Bank stock, again this is the model-based reference abundance. I've got the three lines on the chart here. The top line is the target, the middle line is the limit, and the bottom line is the threshold. You can see here that the stock status for abundance is below the target but above the limit.

The Gulf of Maine/Georges Bank stock is not depleted. For exploitation we've added some smoothers onto this graphic to try to help visualize things. The red line is just a running three-year average. The blue line is a little less smooth, that includes confidence intervals around it, so that is the gray shading that you see here.

The exploitation is above the threshold, but just barely. Technically, overfishing is occurring in the Gulf of Maine/Georges Bank stock. Some considerations that the SAS would like to put forth for this stock. Eastern Maine has seen more dramatic changes and is likely driving the increase in subsequent decline in survey abundance and landings over the past 15 years.

The inshore fishery is heavily recruit dependent. This leaves the fishery and the stock vulnerable to a downturn in recruitment. This also means that the resource is experiencing growth overfishing. The stable exploitation over time shows the fishery is very efficient at removing the harvestable component of the resource, again demonstrating recruit dependency.

This is an important metric to continue to monitor, but we feel it may not be the best way to assess the impact of fishing on the stock. Continued monitoring of the larval dynamics and settlement success is critical, as is monitoring suspected environmental drivers to these processes.

The SAS particularly wanted to highlight or emphasize that while environment likely has a large influence on survival of larvae and settlers, fishing and management actions impact adult biomass and thus the resulting larval production. Stock status for Southern New England, unfortunately there are no surprises here. Abundance is well below the threshold; this stock is significantly depleted. The SAS wanted to make a note that the Southern New England stock determination has been significantly depleted in every assessment since 2006. For exploitation, the same smoothers are shown here on this graphic.

Exploitation is below the target, so technically overfishing is not occurring in Southern New England. Some considerations for the Southern New England stock. The inshore landings have stabilized over the last decade at very low levels, but offshore landings have declined consistently since around 2015, after experiencing a period of relative stability.

Southern New England landings are at a new time series low. We now have limited ability to track settlement with surveys being either discontinued or the environmental changes taking place in the surveyed areas has essentially resulted in non-suitable thermal habitat. It is unclear, but it seems unlikely that settlement in non-traditional nurturing habitat, such as deep water, is going to be sufficient to provide recruitment to the stock.

Productivity in the stock is severely compromised. Environmental conditions inshore have continued to worsen. The reproductive success from existing spawning stock biomass appears to be insufficient to sustain a stable population at current exploitation levels. Like all models there is some uncertainty in the results and thus in the resulting stock status determination.

The way the SAS is characterizing uncertainty for this assessment is by using the results of the sensitivity analyses. The graphics here, the gold bars around the means are essentially showing you the level of uncertainty around our annual estimates. For the Gulf of Maine/Georges Bank stock we ran 21 different sensitivity runs. All of these runs were robust to the trends. For the abundance results, all of them were below the target and above the limit, same as the base case results.

For the exploitation, 11 of the runs were above the threshold, indicating overfishing, same as the base case. Ten of them were between the threshold and the target, suggesting that overfishing was not occurring. For Southern New England there were 38 different sensitivity runs. Again, all of the results were robust to the trends. For abundance the results were all below the threshold.

For exploitation, 12 of the runs produced an exploitation estimate below the target, suggesting no overfishing, same as the base case. Twenty of the runs essentially resulted in exploitation between the target and the threshold, while 6 of the runs resulted in exploitation above the threshold, indicating overfishing. Recommendations from the SAS to the Board, based on these assessment results.

For the Gulf of Maine/Georges Bank sub-stock the SAS recommends the Board immediately initiate a Management Strategy Evaluation, in order to clearly identify management goals and objectives for this fishery, to better understand that socioeconomic status and concerns and to identify potential management tools that will have buy-in from the industry and prevent further declines towards biological thresholds. We recommend continuing the annual data update process that was established after the 2020 assessment. We recommend that the next benchmark assessment

for this stock happen in five years. For Southern New England the SAS recommends that the Board initiate significant management action. This provides the best chance for stabilizing or improving abundance and reproductive capacity of this stock.

We recommend continuing the annual data update process that was established after the 2020 assessment, and we recommend that we simplify the next stock assessment for the Southern New England stock by discontinuing the modeling efforts and focusing instead solely on the use of model free indicators, to watch for any indications of improvement to the resource.

This should be completed in five years, coincident with the next Gulf of Maine/Georges Bank stock. Just for clarity here, this recommendation to simplify in Southern New England should not be taken as a recommendation that we're going to ignore this stock. Instead, it is going to let us focus on the simple indicators, which have consistently told the same story as the model results, and it allows us to free up some technical time and expertise to focus on the challenges with the Gulf of Maine/Georges Bank stock.

The final thing I have to present for you is a couple of projections. We use a simulation model to run projections, and we run these about ten years out. The simulation model works with the end results of the assessment model. One of the major assumptions here is that the fishing mortality is similar to the last five years from the assessment.

One of the challenges for doing these projections is in "what do we do about recruitment". The way that we deal with recruitment for these projections is three different methods. The first is no trend, it uses an average recruitment from the current abundance regime. Then there is a linear trend, which fits a linear trend to the recruitment in the current regime, and this last one and new for this assessment, it is a smooth trend.

Essentially it is modeling the entire recruitment time series, extending it forward in annual time steps. There are three sets of projections that we ran, a base case, sensitivity base and the historical. I'm only showing you the base case today, so for the rest of them please check out the assessment document.

The top graph is going to show the no trend on recruits, the middle one is the linear trend, and the bottom one is the results from the smooth trend in recruitment. The abundance with no trend in recruits essentially suggests an increase and then leveling off near the levels seen in the late 2010s. I'm sorry, I just clarify this is the Gulf of Maine/Georges Bank projected abundance.

With that top graph of no trend, the recruit estimate for this is relatively high, and the SAS considers this projection to be biased unrealistically high. The middle graph, the linear trends suggest a decline in abundance and the bottom graph, the smooth trend, also suggest a decline in abundance.

The smooth trend is actually an improvement over previous method. However, as you can see here it shows a very high degree of uncertainty in this projection. It sort of highlights the challenges with trying to figure out what recruitment is going to do in the future. Assuming that past recruitment dynamics are appropriate to apply to the future is a problem, especially as we're seeing the changing ecosystem processes. For Southern New England projected abundance, again the top graph is no trend in recruits, the middle graph is a linear trend, and the bottom is that smooth trend. Abundance with no trend in recruits is suggesting a slight increase in un-stabilization of abundance.

The linear recruits trend indicates further declines in abundance, and the smooth trend also indicates further declines in abundance. Essentially, if the trend in declining recruitment continues abundance is going to continue to decline. We do note here that these estimates might be overestimating that

decline, and that is based on some of the other projections that we run. That is everything I have, so do you want to take questions now or do you want to move to the peer review?

CHAIR ZOBEL: Thank you very much, Tracy, that was a lot of content, and thanks to the SAS for the great work that they did on the stock assessment. I think we're going to go ahead and move on to Dr. Tom Miller to present the Peer Review Report, so please hold your questions for both Tracy and Tom until the end.

PRESENTATION OF PEER REVIEW PANEL REPORT

DR. TOM MILLER: Good afternoon, everybody, my name is Tom Miller; I have the pleasure of presenting the results of the Peer Review of the Assessment that Tracy has just given you the results of. The Peer Review occurred in Woods Hole in September. The Review Committee found the SAS to be highly knowledgeable, highly engaged and highly responsive.

You are very lucky to have a team of Assessment Scientists as dedicated and as detail-oriented as this team are. The Assessment Review was conducted by four of us. I was joined by Adam Cook; who is a lobster expert at DFO and years of experience in lobster fisheries.

Dr. Yuying Zhang is at Florida International University, but she gained her PhD working at the University of Maine, where she was centrally important to developing the assessment model that lies at the heart of the assessment, and Dr. Chris Cahill is an emerging expert in state-space modeling, which is the coming wave of stock assessment.

This Review Panel was really well equipped to get into the details of this assessment, and to give you, I think, an unvarnished review of how reliable this assessment is. We found the assessment to be highly comprehensive. We found the assessment to be highly detailed, both in the information it provided, but also responsive in terms of previous guidance that other reviews have given.

This SAS took those onboard and worked with them. They were highly responsive to comments that the Review Panel offered to them in a pre-review meeting concerning some of their results, and they were highly responsive in changing some of their findings that you have seen presented today.

The indicator analysis was updated, based upon peer review comments and the speed with which the SAS did this was really remarkable, and they should be commended for this. This was a process in which the Assessment and the Peer Review worked as it should have done, it was a team effort and you have a better assessment as a result of it. We want to highlight the intense focus on environmental effects. There was a deeper analysis of environmental effects in this lobster assessment than almost any other assessment we have seen, so deep in fact the assessment team or the Review Team rather, became concerned that too much emphasis was being placed on the environment as the explanatory factor behind the changes that you've seen.

I think that we would feel that the assessment presentation you've just seen has been toned down somewhat in response to those comments. We also congratulate the SAS on the incorporation of the Social Science research that Tracy highlighted in her presentation, which is a reminder that in fisheries management we manage the people, not the stocks.

That research really helps us understand how management action is changing the structure and characteristics of the fishery itself. I am going to now run through the particular terms of reference, with some of the conclusions and some of the recommendations, and I'll close by offering some thoughts for the Board and your deliberations.

First of all, we felt that this assessment represents the best scientific information available for

management. We felt that the SAS evaluated all of the data that was available to them at great depth. We noted a considerable improvement in the quality of the catch and effort data over the last quarter century.

We noted significant advances in the way those data were handled prior to the modeling and in the modeling, and we also noted the importance of specific surveys such as the ventless trap survey. The Review Panel also noticed, as all of you will know that discarding is a prominent feature in the lobster fishery.

The idea of throwing back undersized lobsters or v-notched lobsters is a characteristic of this fishery. People should be congratulated on those efforts. But it does mean that discard mortality may require additional considerations in the future. Given the importance we assign to the Ventless Trap Survey, the Review Team strongly encourages the sources be made available to continue the Ventless Trap Survey in all regions.

The assessment model is highly sophisticated and highly complicated. You heard in the presentation that the SAS used the non-standard approach to modeling mortality, something that the Review Panel quizzed them on at length. Our concern is not necessarily with the form of the mortality, of the natural mortality that is imposed, but the consequences of that natural mortality schedule. Assessment models estimate the total mortality imposed on the stock, and calculate the effects of fishing by subtracting what it assumes to be the natural mortality rate.

If you have a different rate of natural mortality, how you partition the total mortality that the model estimates changes. As I said, we expressed some concerns about the effects of the assumptions on natural mortality on the understanding of fishing mortality. We noted significant advances in the improvement of the way growth was handled in the model.

We also enjoyed greatly the presentation of the alternative growth model that Tracy mentioned, developed by colleagues of mine. That offers hope in the future to integrate the growth modeling into the assessment model. At the moment, growth is modeled outside of the assessment and used in the assessment as another data stream as input parameters. This new approach allows the opportunity to estimate the growth parameters directly in the assessment model. The challenge is that the new growth model, shown in green on the figure yields significantly slower growth rates than the existing growth model, shown in red, and appears to be at odds with the estimates of growth of known-age lobsters shown as the blue points on the figure.

There is still work to be done on the new model, but the advantage is it has of being able to have its parameters estimated in the assessment, mean that we encourage further development of the model. We enjoyed all the discussion on the environmental drivers of lobster and their life history, and as I said, we expressed some concern of an overly detailed focus on the environment as the explanation of patents.

We also noted that this existing stock assessment model originally developed by the University of Maine is getting a little long in the tooth, and there are some signs in the diagnostics of the model that it may not be performing as well as it once did, and that it may be overly complex at the moment.

We also therefore strongly recommend the continued development to the new assessment model that the SAS provided a preliminary presentation to us at the Review meeting. I think I've said all my recommendations at the same time. Climatic drivers, as I've said before, this assessment really dug into the effects of climactic drivers.

The Review Panel certainly acknowledged that climate is affecting the dynamics of lobsters. We were also intrigued by the paradigm shift or the regime shift paradigm, which is used in this assessment, and which Tracy has already discussed. But we caution that overemphasizing

environmental drivers, risks underemphasizing the important role the fishery does have.

One of the concerns we had of the regime shift approach in the immortal words of Joni Mitchell is that "you don't know what you've got 'til it's gone", and it adds a delay into management that you cannot tell the current status of the fishery until you define the regime. It takes several years after a regime shift has occurred to tell you that you are in the new regime, so we expressed concerns over that point.

We found that the SAS fully met the terms of reference in estimating abundance and exploitation, but we strongly recommend the biological reference points should be developed in the future, and that is a point I will return to later in advice to the Board. The SAS undertook, as you heard from Tracy, what is known as a Jitter Analysis.

This is an analysis that asks, how robust are the model results? The SAS went into great depth at the request of the Review Panel to try and explain the highly uncertain results that came out of the Jitter Analysis. We congratulate them for the work they did between our first meeting and the Assessment Review meeting itself.

We encourage them to continue that work. We encourage them to integrate the Jitter Analysis into the development of the future assessment. We also encourage that to help understand that uncertainty, future assessments should be prepared to bring forward and evaluate multiple models. The Assessment Team also did an outstanding job on understanding the model diagnostics, including its sensitivity and its retrospective analysis. There were no significant issues raised with the sensitivity of the model, and there were no significant worrisome patterns in the retrospective.

The indicator analysis was comprehensive. The indicator analysis, we all supported the decision of the SAS not to use time series shorter than 10 years in duration. As I had already mentioned, the SAS has already updated the interpretation of the indicator analysis, based upon recommendations we made at the Review Panel, and we thank the SAS for the responsiveness of their work.

We agree that the reference points were calculated appropriately, based on existing definitions, and the stock status that Tracy defined for you in her presentation was also appropriate. We come back to this recommendation that we should be working towards reference points that include biological productivity, rather than being the somewhat ad hoc indicator approach that is currently in use.

We support all of the research recommendations made by the SAS, and we add three specific recommendations moving forward. We returned again to this issue of biological reference points, making the strong recommendation that they be calculated in the future. We strongly recommend that work should continue, to try and include the new growth model into the assessment, so that it becomes a single integrated assessment model, and we encourage the extension of estimates of natural mortality rate to smaller size lobsters.

That will be required if this integrated assessment model is completed. We support the proposed timing of the next assessment in five years. We recommend that interim assessments for both stocks be continued, and we strongly support the development of a management strategy evaluation for lobsters that could be conducted at a range of scales and still remain useful. At the smallest scale it could be something that the SAS used just to evaluate alternative modeling options.

At a slightly broader scale it could include members of the management board to explore alternative management options of the consideration, and at its most comprehensive and perhaps most useful, it would include all stakeholders, including both fishers who are engaged in the fishery, people in communities that rely on the fishery and other interested parties.

There is a tradeoff in cost and time for these different options, but the Review Panel think all three are strongly worthy of consideration. In conclusion, the advice to the Board from the Review Panel. We strongly recommend that you consider this the best scientific information available as a foundation for you to make management decisions.

We agree that environmental change has had a large influence on the decline of lobsters in Southern New England, but that should not be interpreted as evidence that has no effect on the stock, nor should it diminish the obligation to manage the fisheries that remain. Two of us on the Review Panel lived and worked in Canada during the decline of northern cod. We are intimately familiar with the social consequences of the collapse of northern cod in Canada, and the upheaval that it created in society. In the run up to the collapse of northern cod, cod catchers were hyper stable. They didn't change very much over time. There were strong differences in the harvest in different regions of the range of northern cod.

The offshore fleet in cod saw no change until cod collapsed. The inshore fleet saw worrisome signs that were ignored. There was also the belief that environmental factors were driving change. You have heard all three explanations as present in lobster. We are not saying for a minute that lobster is on the edge of collapse.

But we believe strongly that it is a responsible thing to do, would be to estimate biological productivity of this stock, and set that as reference points. Failure to do so would be like driving the car by looking in the rearview mirror, and concluding it is safe to proceed, because you haven't hit anything yet.

That is not the best practice for management. With those, perhaps some of the words to end. We do want to congratulate the SAS on its work. They really produced an excellent foundation on which you can make your management decisions, and I will be happy to answer any questions when the time is right.

CHAIR ZOBEL: Thank you, Dr. Miller, the time is right. If anyone has any questions for Tracy or Tom, I'll look on the floor to Board members for questions. Joe Grist.

MR. JOSEPH GRIST: Well, first, excellent work from both groups. Obviously, Dr. Miller up there to, but excellent work on both sides and good presentations. That was a lot to have to cover. Just a brief question that will probably go back to Tracy. In your presentation you noted that for the Southern New England stock, the recommendation is not to utilize the model approach. If we were to go that direction, what does it do to projections or the ability to produce projections?

DR. PUGH: The recommendation for the next stock assessment is to not use the model. In terms of this assessment and status, the status determination and recommendations we made were based on the model. In terms of the projections, yes that would complicate the projections, because we used the model results, essentially to base the projections on. I think that the looking at what we're seeing in terms of the patterns and trends in Southern New England, they've been very consistent.

The model free indicators that we use from the trawl surveys, both inshore and the offshore trawl surveys are all showing pretty consistent stories. I think that what the SAS is feeling is that the formal modeling effort and then this formal follow up with the projections is kind of overkill. That we're seeing clear patterns and clear pieces of information from those indicators by themselves.

The challenge with the projections, like I highlighted for the Gulf of Maine in particular, is making the assumption that conditions are going to continue. The Gulf of Maine we've seen changing conditions, and as I mentioned, we've seen a little bit of conflict in those conditions, where the temperatures are conducive to growth and conducive to settlement, but we've got that issue with the larval food sources. In Southern New England we're seeing

relatively consistent stories, in terms of the conditions affecting the stock. We don't have anything coming through to give us an indication that recruitment trends are going to change. We don't really have that conflict in the drivers that drive recruitment for Southern New England. I think that we're not super concerned about our lack of ability to do formal projections for that stock. We think that the information content in the existing indicators is enough to keep an eye on that stock.

Now if something starts coming through in either the temperature indicators, the stress indicators, which I haven't shown but are in the document, or in any of those surveys. You know then we revisit that recommendation. I think that that is always going to be on the table is if we see some indication of change or some positive signs for Southern New England, then we bring that back.

CHAIR ZOBEL: Steve Train.

MR. STEPHEN R. TRAIN: Dr. Miller or Dr. Cahill, either one of you could maybe answer this, and anyone around this table for this last four years, I've been saying there is a problem and we need to do something. But it sounds like in that presentation, if we used the old simplified model of overfished/overfishing to our bull's eye in the middle.

You want to be somewhere near the center. Right now, we're somewhere near the center and on the good side of it on one. That's the one I've understood easily for years. My question is, yes, I think we have to do something, but does it have to be now? It sounds like we have time to maybe figure out a little bit more.

DR. PUGH: I assume you're talking about Gulf of Maine/Georges Bank. The stock is not depleted, so the abundance is the one that we tie the, the sort of stronger management advice around. But at the same time, we have seen the decline is kind of a rapid decline from net peak. You know one might think that we're in between the target and limit right now, which is a reasonably decent place to be.

Now is the time to start having the conversations about, what are our tools, how do we stay there? I think that that is where the management strategy recommendation that we're making comes into play here, is that process there in discussing with the fleet, discussing with the policy makers. What are our tools, what are our goals here? What do we want this to look like and how do we get that?

DR. MILLER: I don't disagree with anything Tracy just said, but I will add two things to it. The reference points that you're talking about are not based upon biological yield, they are based upon guidelines of the availability of lobsters, and the idea that there is going to be something like 30 to 40% of them harvest each year.

Our recommendation is that you work to develop reference points that are based upon the biological potential. The only caution I would give you about how much time is left, is to review the decline of lobster in Southern New England. That was one thing that took the Review Panel by surprise. For an organism that lives reportedly 30 years or so, that fishery declined precipitously within a five-year period. Some people would argue even faster than that. Our concern is not that we see signs in the lobster that say it's going to decline. But our concern is, should it decline the management board won't get very much warning about that decline. I don't think the time for drastic curtailing of the fishery is now. But the time to act to give you the management tools is now.

CHAIR ZOBEL: Jason McNamee.

DR. McNAMEE: Great presentation, Dr. Pugh, it was a ton of work that you put together as efficiently as you could, thank you very much, and thank you as well, Dr. Miller. Great report out of the Peer Review Panel. I think this is directed, well it could be to either of you, I think. I was kind of thinking about the changepoint and regime shift discussions

that were going along with this assessment, and the recommendation from the Peer Review Panel.

They have this model that they were kind of working on in parallel in the background, which is really cool. What I wondered, what I didn't pick up on was whether or not that model has some of these state space attributes in them. I think in my mind the concern about these changepoints and being able to, like you only know the rearview mirror piece of it, and you don't know where you are currently, I think.

State space you kind of add in these random effects, you can solve that problem a little bit in it, also I think helps with some of the other aspects of the model. Is the new model a state space model or is that like a progression beyond what is being worked on? I know it is moving into RTMB which is good, but the actual type of model is what I'm wondering about.

MR. JEFF J. KIPP: Yes, I can take a shot at that. Jeff Kipp, I'm the staff scientist from the Commission, I'm working on lobster assessment. Yes, the new model is in RTMB, which has features on state space models, like Jay is asking about. The model that was presented at the Assessment Workshop was pretty much an exact replicate of the current ADMB model without those features implemented currently.

The idea is to use those features down the road, maybe even into the next assessment, but those have not been developed or a part of that model. We were essentially trying to build a bridge between the current assessment model and the new model in RTMB. Then once we could demonstrate that bridge we would branch off into building in random effects and those types of things into that model.

CHAIR ZOBEL: Carl Wilson.

DR. CARL WILSON: Dr. Pugh, Dr. Miller, this is an outstanding assessment and Peer Review. Having participated in several of these myself, this is an excellent document. I thought the review and the exchange with the SAS was fantastic. I went down to the Peer Review, and the collegial exchanges that I witnessed were invigorating to see the conversations going.

It is a real testament to the people that we have working on the stock assessment, and just the spirit that they are undertaking the work. Really, congratulations. As fun as it is to read a thousand pages, it was excellent work, and there is a little bit of something in there for everybody. Now, having said that, I would like to spend a little time on the recommendation around biological reference points, and tie that into the acknowledgement of how much environmental factors are driving some of the productivity.

I think we get ourselves in a bit of a twist there, in that biological reference points, the assumptions are that you know what the productivity of the resource is going to be, based on a series of life history parameters that have been estimated under the conditions that those studies conducted.

If we're in periods where environmental conditions are phasing alternatively, how does our estimates of biological reference points ever keep up with you if we don't know the rest of the rest of the Joni Mitchell song. I think that is, how do you reconcile those two? Because ultimately, biological reference points allow us to project under different conditions.

What we might think might happen, the projection aspects of the assessment right now, there was one section, I forget which page it was on, but where you went back and looked at the 2020 assessment with the projections and Gulf of Maine/Georges Bank were all projected to be positive. That is a net swing of 75% or so. We would have; I think a lot of work to do with biological reference points.

Now having said that, if we were to hit the limit for abundance, based on the reference points, is that a bad thing? The reference point doesn't necessarily say it's a bad thing biologically, because it is a point

where the fishery has already observed that for a number of years. I think we've got to like figure out how to move those two together, and I think it starts with how you do kind of time variable biological reference points. Just interested in how would you might want to respond to that.

DR. MILLER: First of all, I will reiterate what you said about the positive way in which this assessment and review occurred. It was a pleasure to be a part of, and I think it was an exceedingly collegial exercise. I certainly enjoyed being a part of this, and I hope the SAS also found the reviews to be helpful for them.

I think our concern or our suggestion is not that we know as the Review Team how to do estimates of biological productivity, when that productivity is changing over time. A common assumption in fishery science to date has been that conditions are static. That things return to an equilibrium condition.

There is certainly evidence in lobsters that the environment is changing. The structure of the fishery is changing, and perhaps an equilibrium assumption is one that is not valid. I will say that to not have biological reference points in arguably the most valuable fishery in the nation, and certainly if not in the nation on the east coast, seems to us to be misguided.

That recommendation is not something that the SAS received in the previous two assessments. In the previous two assessments the Review Panel agreed with the supposition that you had at the end of your comment that well, if it goes below what we've seen before, isn't that enough of a guideline? Our sense would be, perhaps it is. But until you calculate those reference points, you really wouldn't know whether the exploitation rate you are setting has been sustainable, has any relationship to what the potential yield of the stock could be.

It really is the value of the fishery, not just in dollar value, but the socioeconomic value of the fishery to the region that makes a suggest that not having biological reference points is a significant gap in management, and something that should be closed.

CHAIR ZOBEL: Carl, did you have a follow up?

DR. WILSON: Just a quick follow up on that. I think one thing in support of that idea is, if you were to get to the limit reference point in abundance, and you had some indication that your biological productivity had changed, that starts to answer the question of, is that a bad thing or not? I think there is that third exploitation abundance and reference point. That does start to support the school, I guess.

DR. MILLER: Just as a follow up, and hoping it doesn't just become a dialogue between the two of us. The other concern that makes biological reference points really important is the distribution of catch among the statistical areas. This concern is that it is hyper stable in the middle, and we begin to ignore what is going all around the edges of the range, we're at even more risk than it would have been otherwise.

CHAIR ZOBEL: Doug Grout.

MR. DOUGLAS E. GROUT: I will concur on the excellent, excellent work that has been done by both the SAS and the Technical Committee and the Peer Review. It was well explained, very complex, and I came away understanding 99% about what you said. My question for you, based on this recommendation coming out of the Peer Review of estimated biological reference points.

This is a question for either Tracy or Jeff. Do you see any difficulties in developing biological reference points for lobsters, either because of their life history characteristics or any of the information we have here? Do you see any problems with coming up with one, if you were given enough time?

DR. PUGH: Yes, so this is before me, so I am trying to remember history before me. But essentially the

previous assessments and I think the FMP was based on biological reference points, so with the F10% or the F.1. Those have been estimated for lobster in the past. The challenge, in terms of interpreting those has been that it never entirely, sort of passed the straight face test.

I think if I'm remembering correctly, the estimates for, yes 10% I think suggested that Southern New England could never be overfished, and the estimates for the Gulf of Maine indicated that overfishing was occurring, and yet we've seen these increases in the Gulf of Maine consistently over time. Those older reference points were saying, you're overfishing, you're overfishing and yet stock was going up and up. There is sort of a disconnect between what was coming out of that and what stock was actually doing. I think that some of this is coming down to some of the uncertainties we have about growth and natural mortality. I mentioned a number of times in the presentation that these uncertainties around growth and natural mortality have impacts to the scale of our results. They don't impact the trends over time. I think that those uncertainties impacting the scale of our abundance references are where these challenges are coming in. I'm going to do a little phone-a-friend here and ask if Jeff can weigh in a little further here.

MR. KIPP: Yes, I would emphasize the concerns with this scale of the estimates out of the assessment model, the Jitter Diagnostic that was discussed as not providing the favorable results that we're looking for, really indicated that the uncertainty around the scale of estimates is considerably large.

But really at the end of the day when we look at trends, we are very confident in the trends that are estimated here, and that has kind of pushed us in this direction of trend-based reference points. I think the scale of estimates is a major uncertainty that we really need to work out, to have more confidence in biological reference points, because those do depend on accurate scales of estimates of your population estimates.

Then the other thing that is challenging, I think Dr. Wilson was mentioning was, how do you formulate those biological reference points when productivity is changing through time. One of the challenges here is, we're dealing with recruitment in terms of five years after these animals have been produced.

There is sort of this really uncertain window from when they settle and when they actually recruit to the model that we're tracking them in. What year or period of productivity you use to represent the biological reference point for what you should be currently managing, creates some challenges with that lag.

That lag makes it difficult to directly relate a certain period of productivity to when you should be managing at that point. Yes, I think there are a number of things I think we would need to work out, and would likely take a considerable amount of time before we felt really confident about any biological reference points.

The scale of estimates we do hope to address with the new assessment model we were just talking about, and that that platform may allow us to address that issue better than the current platform, and that is going to be part of the next benchmark assessment.

CHAIR ZOBEL: Any other questions by the Board? Seeing no other question.

CONSIDER ACCEPTANCE OF BENCHMARK STOCK ASSESSMENT AND PEER REVIEW REPORT FOR MANAGEMENT USE

CHAIR ZOBEL: We have to consider accepting this Stock Assessment and Peer Review Report for management use. Does anybody have the desire to make a motion to do so? Doug Grout.

MR. GROUT: I'll make that motion. **I move to accept the 2025 American Lobster Benchmark**

Stock Assessment and Peer Review Report for management use.

CHAIR ZOBEL: Thank you, that is seconded by Eric Reid. Any discussion on the motion? Seeing no discussion, I'm going to try it the easy way, **so any opposition to the motion on the board? Seeing no opposition, this motion passes by unanimous consent**.

CONSIDER MANAGEMENT RESPONSE, IF NECESSARY

CHAIR ZOBEL: Is there any further discussion on considering management response to the Stock Assessment and Peer Review?

DR. WILSON: Yes, I think this discussion or a potential motion would be around acknowledging that the Gulf of Maine/Georges Bank stock has gone down by about 30% in this assessment period. Knowing that this Board, certainly prior to my arrival here, has been receiving annual updates from the TC for serving indices.

I do think that with the repeal of Addendum XXVII we did lose kind of an indicator on those annual updates. Happy to have a conversation about that. I do have a draft motion around that that I think might inform kind of our annual conversations around lobster.

CHAIR ZOBEL: Carl, why don't you go ahead and get that up, and that can kick off a discussion for us.

MR. WILSON: I believe they have the motion here. I **move to task the TC to include a recruitment index for the Gulf of Maine/Georges Bank, similar to what was used in Addendum XXVII (combined recruit survey index), as part of future data updates to the Board at the annual meetings.**

CHAIR ZOBEL: Is there a second to the motion? David Borden. Carl, rationale?

DR. WILSON: Yes, again, Gulf of Maine/Georges Bank is a resource that is changing, and I think it's prudent for this Board to keep as many eyes and ears on what's going on between assessments as possible.

CHAIR ZOBEL: Anything else to add, David? Okay, is there any discussion on the motion on the board? Jeff Kaelin.

MR. JEFF KAELIN: I've been sitting here thinking about this. By the way, Dr. Pugh and Tom, Dr. Miller, terrific work. When we repealed Framework XXVII and set aside the potential for gauge increases, at least for now. I noticed in your report, Dr. Pugh, you had a slide that showed an increase in the stock around the time that the last gauge increases were implemented.

Is there a way, when you come back to the Board following this motion, that you could try to project what the benefits of the stock today would be if those gauge increases were put into place, similarly to your ability to go back in time and recognize that the gauge increases had a significant effect on the stock at that time?

That is my question, and what has been going on in the back of my mind since I've been sitting here listening to this. In retrospect, it looks like we might have made a mistake. But is there a way to make some projections about what the benefits could have been, in terms of turning this around somehow?

DR. PUGH: Yes, so I think what you are referring to is the changes in the effective exploitation graph where, like for the Gulf of Maine it was high in the '80s, and then after they changed the gauge size, I think it was in '89 it came down. Then for Southern New England we had the period of stable high and then the transition down to a period of stable lows. That's what you are referring to, correct? Okay. I don't know that we could do projections for effective exploitation. I might have to punt that over to Jeff.

MR. KIPP: We could relate, sort of use an F in instantaneous fishing mortality rate for projections, but we can relate that back to an exploitation level, so we could map that to an exploitation level.

MR. KAELIN: Yes, I think that would be instructive, if it could be done with the magic of your models and the fairy dust that Mike was talking about earlier. It would be nice to use, to have something to grab onto that might help show us the way to turn this around, or have the Board find a way to do that. Thank you for the consideration.

DR. PUGH: I think, I'm trying to think how we would go through this, and if there is information that we put together with the construction of Addendum XXVII in the first place that will help with this. I don't know that we can do this quickly, I'm pretty sure we can't do this quickly. Is the request for us to essentially re-estimate exploitation levels as if a gauge change had gone into place in a specific year?

MR. KAELIN: Exactly. Understanding it would be an estimate and not something we definitely have to live with. But yes, other than that I don't see how we have any information in front of us to move ahead, other than looking at the potential benefits from the addendum that we set aside.

CHAIR ZOBEL: I think there is a little bit of a difference, Jeff, between your request and the motion we currently have on the board. I just want to make sure that that clears up that confusion. Carl's motion is separate from what you are requesting.

MR. KAELIN: It is. I was just trying to illustrate a question that I had in my mind about what the effects of setting aside the potential gauge increase was. If it doesn't fit here, I don't know, maybe it doesn't, but anyway, you know what is on my mind. I was in the lobster fishery myself for a long time. I am alarmed, frankly with the report today that we've seen. I'm wondering if we made a mistake, or how to calculate the magnitude of the mistake we may have made by setting that addendum apart. If it's separate from this motion, I apologize, and I'll just leave the question on the table.

CHAIR ZOBEL: Jeff, what we can do is dispense with this motion. If you desire to bring that up as a tasking then we can go to you after.

MR. KAELIN: That sounds good, Madam Chair.

CHAIR ZOBEL: Great, thank you. Any other discussion on this specific motion on the board? Seeing no more discussion, is there any opposition to the motion on the board? Go ahead and take a minute to caucus. Does anyone need more time, are we ready? Let me ask the question again, **is there any opposition to the motion on the board? Seeing no opposition the motion carries by unanimous consent**. Anything else to come before the board on this? Jeff, did you want to add a tasking?

MR. KAELIN: I do. I'm not sure how to put it, but I would like to task the TC to try to project the benefits to at least the Gulf of Maine/Georges Bank lobster fishery, if the gauge increases from Addendum XXVII were put into place when they were first proposed.

CHAIRS ZOBEL: Okay, just give us a second to catch up with the motion. Jeff, if this is what your intent was, do you mind reading this into the record, please.

MR. KAELIN: Sure. I **move to task the TC to project the benefits to the GOM/GB fishery** if the, because it's one, you're looking at it as one unit, right? **If the gauge increases from Addendum XXVII were put into place as originally scheduled.**

CHAIR ZOBEL: Okay, is there a second to the motion on the board? Bill Hyatt. Any further rationale?

MR. KAELIN: I'm looking for a signal that could give us a path forward and try to anticipate what the magnitude of the changes would be to see a turnaround in these stocks. Maybe that gauge increase wasn't big enough. I don't know if you can put this together, I would be impressed, but it's begging the question, I think that we set these aside and now we're moving ahead with a management strategy evaluation.

I'm thinking of the herring management strategy evaluation, which was a disaster frankly, for the herring industry. I'm not a big fan of MSEs and that is an awful lot. You don't have to record all of this, but yes, where do we go from here? The only clue that I can think of is to take a look at what we set aside and didn't do, in terms of projecting what the benefits to the stock would have been. Is that being clear enough, Madam Chair?

CHAIR ZOBEL: Yes, I think Jeff Kipp has a clarifying question.

MR. KIPP: Yes, I just wanted to clarify. You mentioned you wanted to see the changes in exploitation. But I think what you want to see is the changes in abundance if we changed the gauge size. What would the projected of stock abundance be? Is that the interest?

MR. KAELIN: Yes.

MR. KIPP: Okay yes, so we can do those projections. There will be the same caveats around those as the current projections that we provided in the assessment. One big thing is, there is no stock recruit relationship, so you don't get any kind of return on improvements in abundance that trickle through, through a stock recruit relationship. But we can include the caveats around those with these projections to consider, but yes, we can do what you are asking for.

MR. KAELIN: Good, thank you, Jeff, I appreciate that.

DR. PUGH: Just to follow up. You know this is something that we can do. Just to set sort of expectations, this is not something that we can do by February. This will require work from our federal partners on the TC and they have not been to work in three weeks, so we don't know what the future of that is, we don't know how long it is going to take them to either get back or to get caught up. This is definitely not a task that we can accomplish by February.

MR. KAELIN: Yes, understood. We're hung up in a lot of different areas, I understand. I appreciate that, Tracy. Thank you.

CHAIR ZOBEL: Are there any other discussion on this before we take a vote on this? Does anyone need to caucus before I call the question? No, okay. **Is there any opposition to the motion on the board? Okay, we do have opposition, so we're going to take a roll call vote, a vote. If you are in favor of the motion, please have one member of the delegation raise their hand.**

MS. KERNS: Rhode Island, Massachusetts, Connecticut, New Jersey, Virginia, Maryland, Delaware, New Hampshire, NOAA Fisheries, New York.

CHAIR ZOBEL: Opposed.

MS. KERNS: Maine.

CHAIR ZOBEL: The motion carries 10 to 1. Jason.

DR. McNAMEE: I'm not sures, this might be a little out of sequence, but we'll just kind of get it out on the table. I really appreciated the discussion about and the support from both the Peer Review Panel and the Stock Assessment Committee, the support for doing our management strategy evaluation.

We talked about this at length a few years back. I guess I am a little concerned it just kind of popped, you know doing that immediately, like right now let's start. I would like to see what we've worked on. I think there may have even been a white paper that was produced or something akin to that.

What I would love to see for February is kind of a resurrection of the materials that we had put together the last time we were talking about management strategy evaluation for lobster, so that we can review that and then potentially take action in February, just to give us a little time to think about it. I don't think I need a motion for that, but just offer it as a suggestion.

CHAIR ZOBEL: Yes, I will check width staff. I don't think you need a motion either, and everyone is agreeing. That has been noted, thank you. Any other motions on this topic for discussion points. Okay, seeing no other hands we'll move on to considering reports from Gulf of Maine states on industry surveys and meetings. I think we will be going from north to south here, if I recall correctly. Get the first slide up and then I can confirm or deny that. Great. Carl Wilson, go ahead.

CONSIDER REPORTS FROM GULF OF MAINE STATES ON INDUSTRY SURVEYS AND MEETINGS

DR. WILSON: Okay, so our survey went out late June or early July, it was due back at the first of August. We sent the survey to all lobster license holders greater than 18 years old and dealers. The questions were supported and crafted by Maine's Lobster Advisory Council and the Department, the Subcommittee of that Lobster Advisory Council.

We really felt this was an opportunity to gauge the opinions on the resource in the fishery directly from the participants. I think everyone was feeling a little bit of, what is the true sentiments out there after the Addendum XXVII conversations of last winter. In kind of a bit of some survey development trickery, not trickery, but just ways to get through what would have been a very large list for the Department to send out, 4,600 surveys.

We felt the way that each license holder got a unique paper survey that was coded to their license number, and they also had a unique QR Code that they could respond to directly electronically, skipping a scanned paper survey. We sent that out to 4,697 recipients. We had a 29% response rate. The last time we sent out a similar survey was back in 2008, and we had a 35% response.

We'll say that we sent it to over 2,000 fewer license holders this time around, and those are fewer license because of the limited entry things that we have in place. Overall, respondents seem to have a good representation by zone, so geographic location, age and activity, if they were active or inactive in the fishery.

We asked about the perception of the resource. Very quickly, the respondents came back as saying 63% felt that the resource was stable, 26% decreasing and 8% increasing. When asked compared to five years ago, lobster and traps are, as far as egg bearing 58% said they were increasing but 31% no change.

Legal lobsters 49% no change, 36% said it was decreasing. Oversize, 52% no change, 22% increasing. Sublegal 42% increasing, 36% no change and V-Notch lobsters, 49% of respondents said there was increasing, with 34% no change. Threats to the fishery, and I think this is a theme that you'll hear from all three states.

These are, I think very consistent, and strong as far as those responding, 91% of respondents were very or somewhat concerned with North Atlantic Right Whale Conservation measures impacting the way they fish, 88% of respondents were very or somewhat concerned about potential ASMFC plan changes, maybe not the most positive group in the room here.

Maintaining the stability of the fleet, respondents could check off three concerns and the top concerns were input cost 85%, again Right Whale protection 70%, 69% followed by market uncertainty and crew availability. Concerns around the long-term health of the resource, leading threats were predation at 53%, habitat 48%, lobster

distribution changes, water quality down to 30% and fishing competition 17%.

Perceptions of the future, 47% of respondents were very or somewhat optimistic of the future. Nearly 80% of respondents feel current Area 1 management is very or somewhat effective, 22% were neutral, 6% ineffective and 3% very ineffective. If they were compelled to act, conversations that might be had. Lower trap limits were the highest response, increasing v-notching in this order, seasonal closures and lobster hatcheries, followed by gauge increases, limited entry change, purchasing of v-notched lobsters and area closures. There was a strong, we've socialized these results with another round of Zone Council meetings. There is a strong sense of the need for continued engagement with fishery members at large, lobster Zone Councils and we would be talking a little bit about engagement with LCMTs.

In all zones that we've presented these results, one of their first questions was, what took you 15 years to send out this survey again? That is a response that we've definitely heard and we're thinking about ways that we might be able to increase the frequency of a survey such as this. I pass it to the next.

CHAIR ZOBEL: Okay, on to the New Hampshire survey, so we asked very similar questions to Maine, although somewhat tweaked for our own local industry. This was sent to all our commercial offshore license holders and opportunities as with Maine to gauge opinions on the resource in the fishery.

Our response rate, we were really impressed, and I want to personally thank the Commercial Fishermen's Association for also making sure that their members were encouraged to do the survey and to have their voices heard. We already had a high response rate and that drove it up even higher, so thanks for that collaboration with our industry members.

Our commercial and limited commercial, which are two limited access kind of more fulltime fishers in our state had a 51% response rate, which is incredible. Then we also have an open-access parttime commercial limited to 100 traps in our state, and that had 17% response rate. Perception of the Resource, you are going to hear a lot of similar themes in all New England states, which is interesting.

From the commercial unlimited commercial group, 63% stable, 13% decreasing, 17% increasing, 7% no opinion. That was very similar to Maine. Part time commercial, these are the100 traps, so a little bit of a different type of fishing, 45% said it was stable, 25% decreasing, 12% increasing, 18% no opinion.

Perception of the resource, and this is just from our more full-time commercial license holders. Compared to five years ago, egg bearing 68% increasing, 19% no change, legal 58% increasing 20% decreasing. Oversized 50% increasing 26% no change. Sublegal lobsters 57% increasing, 21% no change. V-notched 63% increasing 19% no change, so an overall perception of positivity in what was coming into our traps.

These numbers are almost identical to Maine, and you'll find they are also almost identical to Massachusetts, which is very interesting. Eighty-eight percent of respondents were very or somewhat concerned with North Atlantic Right Whale conservation measures impacting the way they fish. Eighty-eight percent of respondents were very or somewhat concerned about potential ASMFC plan changes.

I wanted to throw in a visual, just so it wasn't all boring text. Like Maine, individuals were allowed to pick up to three different answers in response to this question of, what do you feel is the biggest challenge to the long-term health of lobster resource population. Changes in water quality and climate were the majority of license holders, as 76% of respondents selected that, pollution 54% selected that. Predation pressures from native and invasive species 54% and then you can see from there changes in distribution, disease and

pathogens, too much fishing effort in my area, and habitat degradation due to fishing activities.

Also, very similar results to the state of Maine survey. In considering the future, which of these areas presents the greatest concern for maintaining stability of the fleet. The highest by a significant margin at 92% of respondents cost of inputs, followed by Right Whale protection and market uncertainty as the other kind of top three, along with the others that you see listed on the slide.

How did people feel moving on from here, 54% of respondents were very or somewhat optimistic of the future, and 75% of respondents feel current Area 1 management is very or somewhat effective. If compelled to act there was some response for increased gauge size on the small end, but very little percent on that, 1/16 was 19%, 1/32 was 19%.

Then other, 62% wanted no change on this or did not answer this portion. Lower trap limit, no change in trap limits was the majority, 58%. Limited entry or licensing changes at 27% and then some support for a 10 or 20% reduction at 8 and 7%. Seasonal closures, 52% were in support of a January 15 to March 31 closure, 32% January 15 to April 30.

Other management options, so these were other things that were listed, 53% checked off other, and they could provide their own response at that point, so none, more law enforcement, no 100 trap licenses, which is our open-access license. Reduction in maximum size 25%, area closures 10%, quotas 2%, trip limits 10%, so some other management measures that were brought forth. That was it from us, then our survey just closed, so we will be following up and presenting all of the details back to our lobster industry after this meeting. Dan.

MR. DANIEL McKIERNAN: I believe we have Anna Webb standing by.

CHAIR ZOBEL: Okay, make sure, yes, we've got you loud and clear, Anna, go ahead.

MS. ANNA WEBB: Awesome. Good afternoon, everyone. I'm sorry if I cough a little bit during this call, but I do have a drink here I hope will get me through it. Similar to Maine and New Hampshire, our questions were very similar. However, in Massachusetts we did have to modify it to accommodate all four LMAs that land here or fish out of here.

We did have very similar responses for LMA1 and similar overall response rate to Maine with 28%. We offered an online and a paper version of the survey. In terms of demographics, 78% were actively fishing in 2025, 60% did not have an active federal permit, 20% did, 60% fished more than 100 traps on average and about 50% were between 50 and 70 years old.

Our dashboard did go live today, so if you want to check it out and delve into some of our surveys in more depth, you can find out at that link and in that path. In terms of the Perception of the Resource, again LMA1 was very similar to Maine and New Hampshire. LMA2 and OCC were also, or Outer Cape Cod were also similar, we had about 60% stable, 15% decreasing, 14% increasing. LMA3 had a slightly different perception of the resource with 84% feeling it was stable, 11% decreasing and only 5% increasing. Continuing the perception of the resource, again with four LMAs I couldn't fit everything on one slide. Compared to five years ago, how did the lobsters in your traps change for these five categories.

In egg bearing LMA1 thought there were more, 53% felt there were more. LMA2, 41% said no change. Those Outer Cape Cod, 65% found more and LMA3 68% said no change. V-notches, LMA1 had more, LMA2 had no change. Those Outer Cape Cod about 50% said more and LMA3 was 58% no change. Only listed the percentages that were over about 20% here, but there is more information in the dashboard.

For legal size lobsters all four LMAs indicated, the majority of them indicated no change. Oversized, LMA1 51% did see more while the other LMAs saw no change, primarily, and then sublegal LMA1, 2 and 3 had primarily no change, but LMA1 was actually equal percentage also saw more sublegal lobsters. Outer Cape Cod had 50% more sublegal and 20% less sublegal.

In terms of Perception of the Threats to the Resource, kind of a simplified version on the right, where it's all LMAs combined, along with a simplified version of the prompts that were available to the fishers. But in LMA1 again, similar to Maine and New Hampshire, water quality and climate change were the top concern at 55%.

That was followed by predation, fishing pressures, pollution and distribution changes. In LMA2 predation was the highest concern, followed by water quality and climate, then pollution, disease and fishing pressures. Outer Cape Cod habitat degradation was the top concern followed by water quality and climate, and then pollution, predation and fishing pressure is there as well.

LMA3 fishing pressures was ranked highest, again followed by water quality and climate and then predation and distribution changes. Again, similar to Maine and New Hampshire, 93% of our respondents were very or somewhat concerned with North Atlantic Right Whale conservation measures, and 87% with potential ASMFC plan changes.

Similarly, the greatest concerns for the sustainability of the fleet were input costs and Right whale protections, followed my markets. The first two had a much larger percentage of people selected those. LMA2 did have a higher percentage for spatial conflict over markets. In terms of Perception of the Future, effectiveness of the current management area by LMA. LMA1 about 70% were somewhat or very effective, whereas 19% were neutral. LMA2, 56% were very or somewhat effective and 37% were neutral. Outer Cape Cod 85% were very or somewhat effective, whereas 5% were neutral. LMA3 it was 79% versus 11%. About half of the respondents were very or somewhat optimistic of the future of the industry, whereas 30% were neutral.

Then if required to act in response to the stock assessment, again, responses did vary by LMA. LMA1 was trap limit reductions, however, more conservative V-Notches. There was some support for increasing the minimum size or decreasing the maximum size. LMA2, trap allocation reductions ranked highest.

There was, again, some support for decreasing the maximum size and seasonal area closures and more conservative V-Notch regulations. Outer Cape Cod they were dominated by increasing the minimum size and LMA3 was more conservative V-Notch. I think that's it, but there might be one more. Nope, that's it. On the Dashboard you can filter by the LMAs, so you can go through all these questions a little more standard by LMA.

CHAIR ZOBEL: Thank you, Anna, does anyone have any questions for any of the three states on this? Dennis Abbott.

MR. DENNIS ABBOTT: Just to be clear, how many 1200 trap permits do we have in the state of New Hampshire?

CHAIR ZOBEL: Twenty-nine.

MR. ABBOTT: How many?

CHAIR ZOBEL: Twenty-nine.

MR. ABBOTT: Twenty-nine, and we have no 800 trap limits.

CHAIR ZOBEL: That's correct, not state license.

MR. ABBOTT: Just for the record, thank you.

CHAIR ZOBEL: John Clark.

MR. CLARK: That was very interesting, the results. I notice that predation came up as a big concern for a couple of states. Just wondering, is there a specific predation concern that is on the increase, or was this just overall?

CHAIR ZOBEL: Dan, go ahead.

MR. McKIERNAN: Black Sea bass in Southern New England and maybe up in southern Massachusetts, Cape Cod Bay waters as well.

CHAIR ZOBEL: David Borden.

MR. DAVID V.D. BORDEN: To John's point, it's not only black sea bass it's scup. I get constituents that call me all the time and basically say, how can you expect the lobster resource enclosed in Area 2 to respond favorably if the biomass of both scup and sea bass is this high. I mean it's logical the food preference for scup and sea bass primary food source is crustaceans. We've got a bit of a conflict. I can address that later, and I would be happy to address that later.

CHAIR ZOBEL: I can state that we've heard a number of different species listed as concerns over predation in our area, and I don't know if Carl has a similar sentiment.

DR. WILSON: Yes, we have definitely heard about striped bass.

CHAIR ZOBEL: Any other question? David.

MR. BORDEN: Just a general question for the state agencies. Did any of the state agencies look at the sampling, biological sampling in states and then compare it to the responses? If a state agency basically got a response that the industry wants to do more v-notching, I'm just making this up as an example, and then they look at the v-notching rates and the v-notching rates are declining.

What does that say to us? I mean my understanding in some of the north New England states v-notching rates have declined, and that has been from biological sampling. I don't know, maybe Carl, if that is erroneous, Carl, please correct my erroneous infraction.

DR. WILSON: I don't think we've gone, at least in our moving around with the responses. I don't think we've gone that deep into the analysis, kind of taken a cursory look and they linked our landings and licensing information to the responses. But I think that is a nice logical step. We did, looking at landings in the past five years.

There might have, in areas that have shown the most volatile declines there was a slight tendency that respondents indicated decreasing more than stable than in some of the other areas. But my general feel is this is a remarkable coherence across three jurisdictions and the results. I do think that that fits into the perceptions of industry participating. But some of the drivers within the reality of the industry is complementary and/or different than what this Board has traditionally discussed, and that's worthy of discussion.

CHAIR ZOBEL: Dan.

MR. McKIERNAN: Yes, just briefly. My guess is that the V-Notch rule, which was enacted 23 years ago for LMA1 with 100% requirement, all egg bearing females shall be notched. I'm guessing that the response from LMA1 participants is to get people to do more of that, which is already required by regulations.

I don't think there is any room for us to regulate that more, or they might be pointing fingers at an adjacent LMA, where they want the other LMA to be required to notch. But I'm guessing there is probably a decay in the rate of v-notch by the active participants in Area 1.

CHAIR ZOBEL: Any other last quick questions before we move on? Seeing none; I am going to go to Caitlin for this next item.

UPDATE ON JOINT COUNCIL OMNIBUS ALTERNATIVE GEAR MARKING FRAMEWORK

MS. CAITLIN STARKS: I'll be very, very quick. As most of you know, the meeting with the Mid-Atlantic Fishery Management Councils and NOAAs Greater Atlantic Regional Office have been developing the Omnibus Alternative Gear Marking Framework, which considers revisions to the current regulations for gear marking, to allow for the use of alternatives in the Greater Atlantic Region. This would potentially allow for more fishing access in areas that are closed to persistent buoy lines under the Atlantic Large Whale Take Reduction Plan. At their recent meetings in September and October respectively, the New England and Mid-Atlantic Council voted to delay action on this framework until additional information on ropeless gear and visualization technology is available, to better inform stakeholders and input to the Council's decision making.

To gather this information NOAA Fisheries has indicated they plan to issue an RFI or Request for Information in 2026 to solicit information from the public on various discussions pertaining to the alternative gear marking and the approval of certain systems for use. I think with that we'll have a quick update from Mike Pentony on that RFI.

MR. MICHAEL PENTONY: Thanks, Caitlin. I wish I was there with you in person, but alas not to be. I was going to try to give the timeline for the Request for Information, however, given the government shutdown extending for who knows how long, any kind of timeline is a little bit hard to predict. The intention was that we were going to publish something, as Caitlin said beginning of 2026.

List a number of questions, solicit information from all kind of stakeholders involved, the fishing industry, states, the developers of the technology both on the pier side and on the visualization side, hold that open for at least 90 days to ensure that we stand, you know multiple meetings of the Councils and the Commission. Then we would prepare a report based on the information we received addressing all of the issues, a lot of which we heard during the public comment on the draft framework.

Present that report back to the Councils and the Commission, at which point the Councils would decide if they want to proceed with the framework adjustment as initially developed, if they want to modify it, change from the alternatives, add alternatives and so forth. Then the Councils are going to take it from there and decide the sort of final outcome of that draft framework adjustment. Given that you are out of time I will stop there and keep it nice and short.

CHAIR ZOBEL: Thank you, Mike.

CONSIDER APPROVAL OF FISHERY MANAGEMENT PLAN REVIEWS AND STATE COMPLIANCE FOR AMERICAN LOBSTER AND JONAH CRAB FOR THE 2024 FISHING YEAR

CHAIR ZOBEL: So now I am going to go back to Caitlin for a review of the FMP reviews for lobster.

MS. STARKS: I will again be very, very quick to catch us up on a little bit of time. I'm going to step over a lot of our typical information on status of the stock, since you just heard about that. Then for the status of the FMP, I think you all have been at meetings every quarter for the last year talking about Addendum XXX through XXXII, so I will skip the history lesson on that and just go to the commercial landings for lobster.

We did see, we all know increases that are significant over the time series. The peak was in 2016, near 160 million pounds, but since then the landings have trended downward, and the 2024 coastwide commercial landings were around 112.6 million pounds, and that is a 7% decrease from 2023.

The largest contributors in 2024 were Maine, as usual and Massachusetts with 77 and 14% of landings, and the ex-vessel value in the dashed

black line was approximately 617 million dollars which is a 20% decrease from 2023. For state compliance there are just a few issues the PRT noted in their review. First is that Rhode Island, Connecticut and New Jersey, sorry just Connecticut, New Jersey, Rhode Island you said this year did not meet the minimum port or sea sampling requirement of 10 trips. There were no trips completed for New Jersey or Connecticut and then Massachusetts was not able to provide all of the required data by August 1st, otherwise everyone appears in compliance with the requirements of the FMP.

As for de minimis, Delaware, Maryland and Virginia requested and qualified for de minimis status, and so the PRT recommends Board approval of those requests. Then there is one more PRT recommendation, which is to task the Technical Committee with providing a recommendation on sampling needs by area or stock unit, to get at those issues with the inability of some states in the SNE region to complete the biological sampling.

Then I'm going to go straight into Jonah crab and take questions at the end, if they are out there. I will also skip the history lesson on the FMP for Jonah crab, remind you all that stock status for Jonah crab is based on the recent assessment in 2023, and there are four stock areas, they were all assessed separately.

The assessment concluded that the two Gulf of Maine areas, so inshore and offshore Gulf of Maine as well as offshore Southern New England have not been depleted to historical lows. However, we don't have a reliable abundance index for the inshore SNE stock, so we don't have a status determination for that stock.

For landings in 2024, Jonah crab landings totaled approximately 12 million pounds, and that is a 9% increase from 2023, but the ex-vessel value in 2024 was about 9.8 million, which is a 26% decrease from 2023 and Massachusetts is still the largest contributor to that fishery 2024, followed by Maine and Rhode Island.

Just a quick note, these values for Massachusetts are based on dealer reports because of the lag in receiving the harvester data. For PRT recommendations, again same issues as for lobster, including that sampling issue for Connecticut and New Jersey, so that included a new PRT recommendations here as well.

For de minimis requests its Delaware, Maryland and Virginia again, and all three qualify for Jonah crab de minimis as well so the PRT recommends approval of those requests. The two actions for Board consideration based on the PRT Review are to consider approval of the FMP Reviews and State Compliance Reports and de minimis status, as well as that Technical Committee task to recommend commercial sampling. I can take any questions.

CHAIR ZOBEL: Any questions for Caitlin? Seeing no questions, Joe.

MR. JOE CIMINIO: With no questions and acknowledging my states sampling issues, I would **move to approve the Lobster and Jonah crab FMP Reviews for the 2024 fishing year the State Compliance Reports and the de minimis status for Delaware, Maryland and Virginia, and also to task the TC with recommendations on commercial sampling needs by stock or management area.**

CHAIR ZOBEL: Seconded by Steve Train. Any discussion on the motion? **Is there any opposition to the motion on the board? Seeing no opposition the motion carries** by unanimous consent. We do have a clarifying question, go ahead.

DR. PUGH: With regards to the TC task, in terms of recommendations on commercial sampling needs by stock. Is this sort of to meet model needs? Is there a specific goal here that you're interested, in terms of identifying the sampling needs?

MS. STARKS: I'm going to help Joe out here. I think the intention is to get a sense of how we can maybe redistribute the different needs by state, in order to

meet the needs of the assessment, but acknowledge that it has been very challenging for some of those southern states to get samples in the current state of the fishery.

MR. CIMINO: Yes, Madam Chair, just a follow. Unfortunately, this isn't the only species that we dealt with these issues for, you know for weakfish to winter flounder, these are the same type of sampling needs that we've struggled with, where it's appropriate to get them from.

You know particularly, we want to put a face on fisheries dependent sampling, and yet for some of these species we struggle so hard that we go at the fisheries independent sometimes. Any help that we can get on understanding what would be best here would be appreciated.

CHAIR ZOBEL: Thank you, I think we're all set there.

ELECT VICE-CHAIR

CHAIR ZOBEL: We need to elect a Vice-Chair to the Board; do you have any nominations? Eric Reid.

MR. ERIC REID: Thank you, Chair, I would **nominate Mr. John Maniscalco from the Empire State to be the Vice-Chair of the Lobster Board.**

CHAIR ZOBEL: Dan McKiernan is seconding that. Do we have any other nominations? Seeing none; **anyone opposed to Mr. Maniscalco becoming Vice-Chair? Congratulations**.

MR. REID: Sorry, John, they made me do it.

CHAIR ZOBEL: This is what happens if you aren't at the Board meeting.

OTHER BUSINESS

CHAIR ZOBEL: Okay, we have one other item I know of under Other Business.

LCMA 5 SEASON OPENING

CHAIR ZOBEL: Go ahead, John Clark.

MR. CLARK: It's already come up at the beginning of the meeting, of course, and the request that Sonny Gwin wrote the letter, but I know it's something that the lobstermen from all of LCMA5, New Jersey, Delaware and Maryland are interested in making this season change. I assume that this has to be done by Federal Rule, since it is in Federal water, so I think we're just hoping that the Board will recommend that that season change be investigated, and hopefully put into place in the future here as soon as possible, actually.

CHAIR ZOBEL: Toni Kerns.

MS. KERNS: John, I think that it might be helpful to task the Technical Committee to look into what it means to have this season change relative to the current stock assessment, looking at what current effort levels are versus what the effort levels were when we put that 10%, because this was specifically in response to the 10% reduction to the Southern New England stock, I think back in 2012, 2013 timeframe.

I think in order for us to provide information to NOAA Fisheries to get something into rulemaking, the TC is going to have to do a little work and help all of the states that are impacted by the TC members get some information over to NOAA, in order to justify that change.

MR. CLARK: Then I will request the TC do just what Toni said, thank you.

CHAIR ZOBEL: Is anyone opposed to that approach to task the TC? Great, we have it captured. Jason.

DR. McNAMEE: Not on this topic, but before we stop. There was one recommendation that I wanted to explicitly address. I won't do that now, but I'm hoping we can put a discussion about the Southern New England stock assessment on the next agenda, so that we can talk about that recommendation.

CHAIR ZOBEL: Thanks, Jason, that's been captured for an agenda item in February.

ADJOURNMENT

Is there any other business to come before the Board today? With that I will take a motion to adjourn, Steve Train, seconded by Doug Grout. We are adjourned, thank you very much.

(Whereupon the meeting adjourned at 5:00p.m. on Monday, October 27, 2025)

Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **American Lobster Management Board**

FROM: **Jonah Crab Technical Committee**

DATE: **January 20, 2026**

SUBJECT: **Jonah Crab Indicator Update Through 2024**

Background

The 2023 Jonah Crab Benchmark Stock Assessment determined that the abundance of three of four Jonah crab stocks (Offshore Southern New England or OSNE, Inshore Gulf of Maine or IGOM, and Offshore Gulf of Maine or OGOM) has not been depleted to historical lows observed in the 1980s and 1990s. Data were insufficient to make determinations about abundance for the Inshore Southern New England stock (ISNE) or fishing mortality rates for any of the four stocks. The Peer Review of the assessment noted substantial uncertainty about stock status and expressed concern due to similarities between some trends in data for the US stocks and a Canadian stock assessed in the late 2000s that appeared sensitive to fishing pressure and experienced a rapid decline in abundance.

Following review and acceptance of the assessment in October 2023, the American Lobster Management Board tasked the Jonah Crab Technical Committee (TC) to "recommend possible management measures or other options to correct what appear to be deficiencies in the stock". A TC recommendation at the 2024 ASMFC Winter Meeting in response to this tasking was to conduct annual updates of indicators selected during the stock assessment for the OSNE stock, the stock supporting the majority of coastwide landings, to identify any concerning trends between assessments. Indicators for the other three stocks should be updated every five years. The TC also recommended monitoring several additional indicators to understand important contextual information from the fishery. The TC did not believe management action was necessary at the time.

This memo provides results of the second annual indicator update. Indicators include the number and proportion of pot/trap trips landing Jonah crab, the number and proportion of lobster/crab permits landing Jonah crab, landings, the number of trips landing Jonah crab in Massachusetts alone, catch per trip (CPUE) in Rhode Island, price per pound of Jonah crab and American lobster, and fishery-independent abundance indicators from the Northeast Fisheries Science Center bottom trawl survey. Fishery-independent abundance indicators include recruit abundance (male crabs 90-119 mm carapace width), exploitable abundance (male crabs 120 mm+ carapace width), and spawning abundance (female crabs 80 mm+ carapace width).

All fishery-dependent indicators have been updated with 2024 data. Fishery-independent indicators are updated every two years due to intermittent processing of these data and this

update includes the first update of these indicators since the stock assessment, with updated data from 2022-2024. Historical indicator data from this survey have also changed since the stock assessment due to (1) correction of an error leading to some crabs being excluded from the data set during the stock assessment, (2) application of a gap-filling procedure to address strata with missed sampling in a given year (as applied to American lobster in its recent 2025 benchmark stock assessment), and (3) modification of the survey domain to better align Jonah crab stock boundaries with existing survey strata boundaries.

Additionally, fishery-dependent catch rate data from the Commercial Fishery Research Foundation's (CFRF) Research Fleet ventless trap sampling were revisited during this second update. During the first data update, the TC recommended revisiting CFRF data to determine if there is any utility in including these data in indicators, despite their limited utility during the stock assessment. Commission staff and the TC Chair communicated with CFRF Research Fleet leads following the call and were informed of several developments that may improve the data collected. An increased stipend was offered to fleet participants for fishing ventless traps starting in the fall of 2022, increasing sample size, and collection of target species information for the commercial research fleet began in 2021 that could be linked to some ventless traps sampled. These changes could improve recent and future data, but limitations will remain with the historical data. The CPUE of exploitable-sized (121 mm+ carapace width) male crabs from OSNE sampling sessions was updated with the methods used during the stock assessment for consideration during this update.

The annual update does not include a process or decision rules to trigger management action but rather provides the TC an opportunity to review updated indicators and provide recommendations to the Board for action in response to concerning trends. During the first update last year, the TC determined that stock conditions were similar to what they were at the end of the assessment and that data limitations precluded a recommendation for management intervention at the time. For indicators provided during the stock assessment, time series percentiles are used as a qualitative characterization of the indicator status. The indicators are categorized as positive if above their 75th percentile, neutral if between their 75th and 25th percentiles, and negative if below their 25th percentile. Three-year averages of these indicators to smooth out interannual variability are provided from the final three years of the assessment time series (2019-2021; black asterisk) and the updated time series (2022-2024; red asterisks) for comparison. For indicators added since the stock assessment, most of which have short time series, only time series are provided.

Results

Abundance Indicators

When interpreting trawl survey indicators, it is important to consider the magnitudes of the average catch per tow on the figure x-axis. Jonah crab are an infrequently encountered species during this survey, leading to high interannual variation and narrow ranges of negative abundance conditions near zero. Additionally, an important caveat with these data is that vessel calibration factors are unavailable for Jonah crab to adjust catch rates due to vessel and gear changes that occurred in 2009.

Recruit abundance experienced marginal deterioration since the stock assessment. The updated three-year average abundance in spring declined from a positive status to a neutral status, while fall abundance remains positive. Note that the historical data changes since the stock assessment resulted in a change to the 2021 spring status reported in the assessment from neutral to positive.

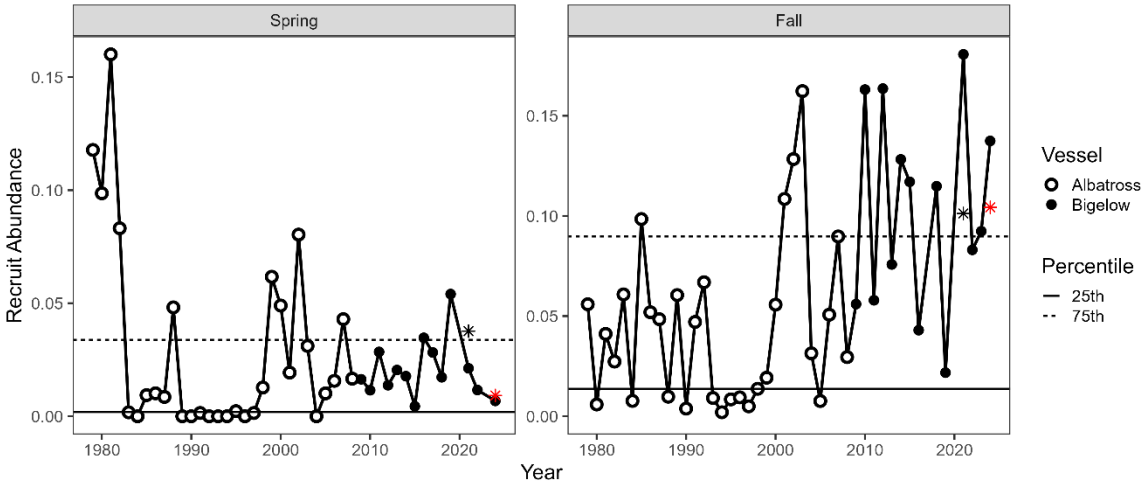

Figure 1. Jonah crab recruit (male crabs 90-119 mm carapace width) abundance as measured by the Northeast Fisheries Science Center Bottom Trawl Survey from the Offshore Southern New England stock.

Exploitable abundance has been stable since the assessment, remaining at a neutral status in spring and positive status in fall. This indicator appears most affected by the vessel and gear changes in 2009, with the current vessel (R/V Bigelow) being more efficient at catching larger, exploitable-sized male crabs. The historical data changes since the stock assessment did not result in any changes to the 2021 statuses reported in the assessment.

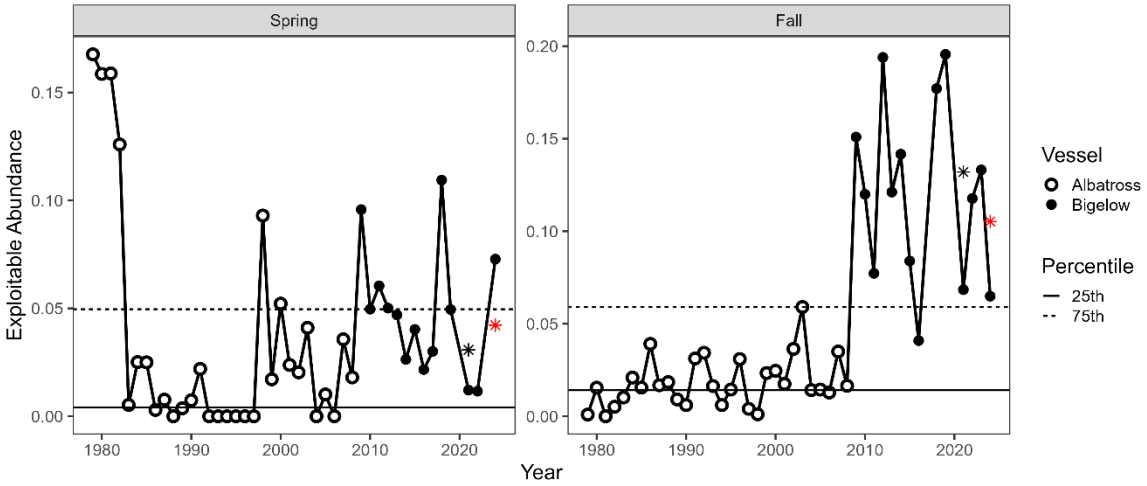

Figure 2. Jonah crab exploitable (male crabs 120 mm+ carapace width) abundance as measured by the Northeast Fisheries Science Center Bottom Trawl Survey from the Offshore Southern New England stock.

Spawning abundance has also been stable since the stock assessment, remaining at neutral statuses in both seasons. The historical data changes since the stock assessment did not result in any changes to the 2021 statuses reported in the assessment.

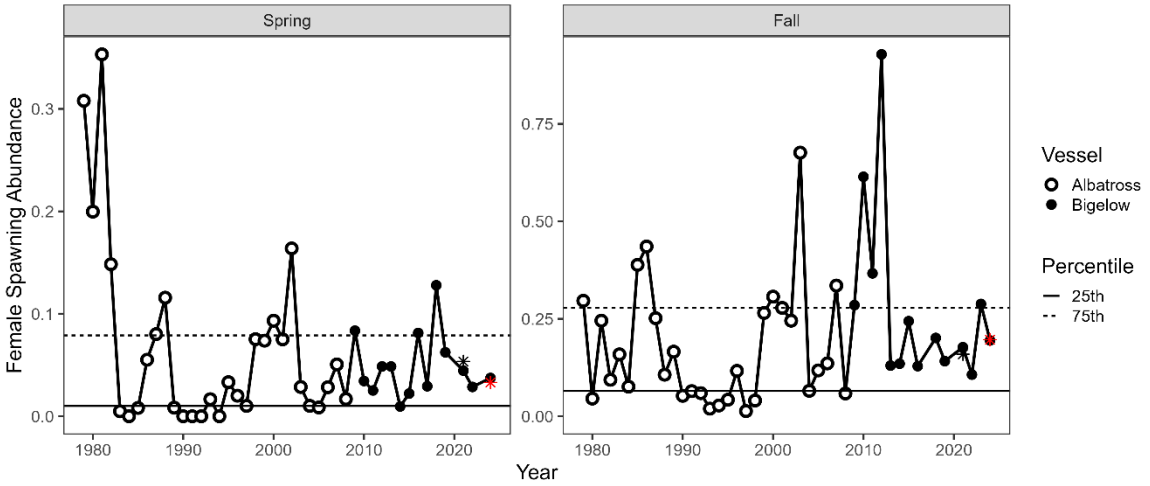

Figure 3. Jonah crab spawning (female crabs 80 mm+ carapace width) abundance as measured by the Northeast Fisheries Science Center Bottom Trawl Survey from the Offshore Southern New England stock.

Trip Indicators

The number of trips landing Jonah crab has declined continuously since 2014 to the lowest point of the time series in 2024. The three-year average remained negative. The proportion of trips in the lobster/Jonah crab fishery landing Jonah crab showed an increasing trend until 2020 but has steadily declined since, moving from positive to neutral conditions since the stock assessment. These indicators show a general reduction in trips by the fishery through time, though it is unclear if this reduction is driven by availability or markets.

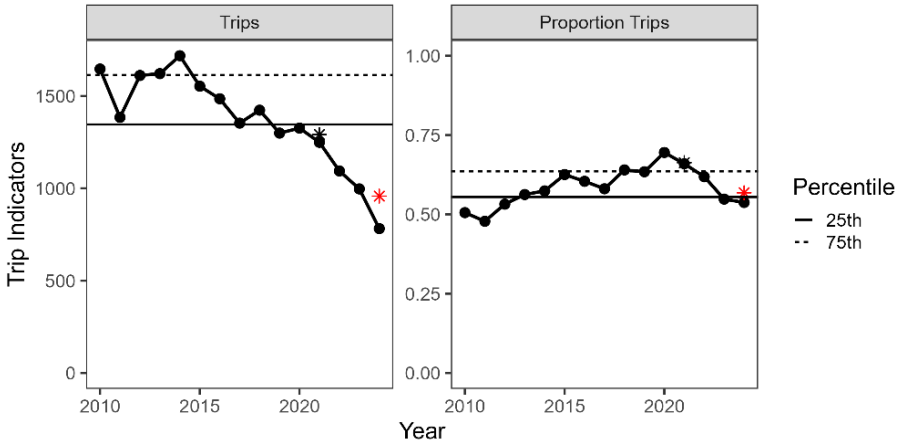

Figure 4. Number (left) and proportion (right) of lobster/crab pot/trap trips landing Jonah crab from the Offshore Southern New England stock.

An additional trip indicator recommended by the TC following the stock assessment, trips landing Jonah crab from Massachusetts alone, shows declines to the lowest levels in 2024. This value is just slightly below the 2023 value which represented a relatively large decrease from previous years. CPUE data from Massachusetts similar to the Rhode Island time series was not recommended because vessel participation in the fishery has been more inconsistent, complicating selection of a "high liner" fleet.

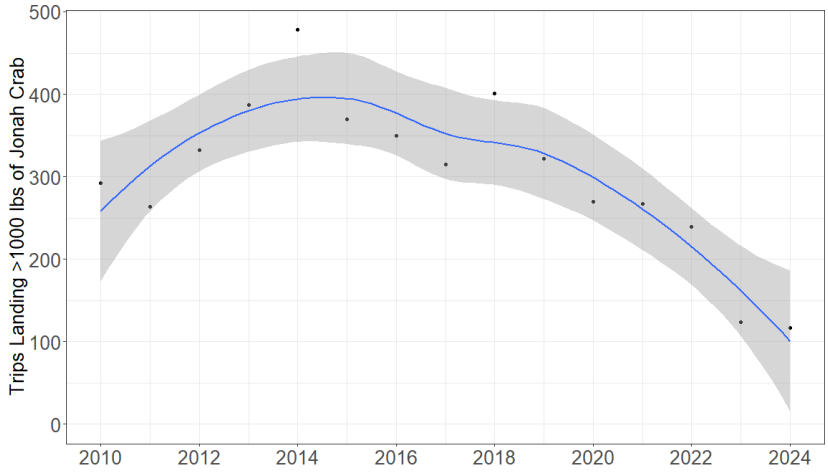

Figure 5. Number of trips landing Jonah crab from the Offshore Southern New England stock in Massachusetts. The blue line and shaded area represent a LOESS smoother and confidence intervals fitted to the data.

Permit Indicators

Permit indicators show similar trends to the trip indicators. The number of permits reporting Jonah crab landings, based on harvester logbook data, declined to its lowest level in 2024, with the status moving from neutral to negative since the stock assessment. The proportion of permits landing Jonah crabs also dropped to a new time series low in 2024 with the status changing from positive to negative since the stock assessment.

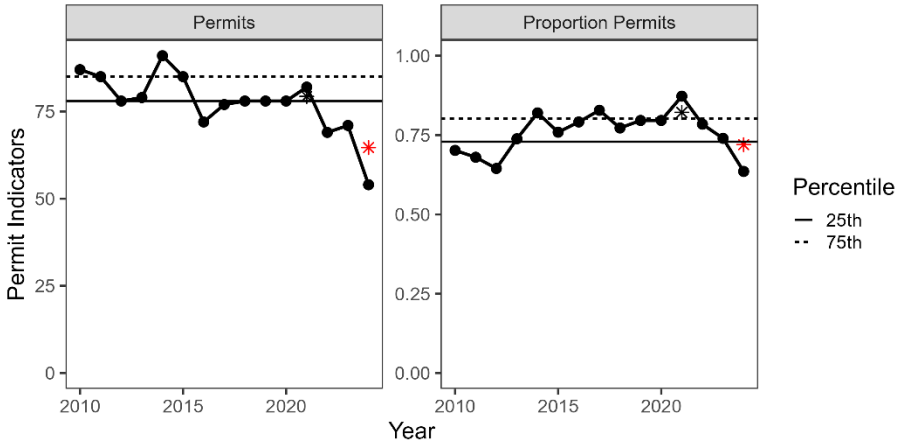

Figure 6. Number (left) and proportion (right) of lobster/crab permits contributing to Jonah crab landings from the Offshore Southern New England stock.

Landings Indicator

Landings are presented at the state and coastwide level because stock-specific landings are only available during the stock assessment cycle. However, the majority of landings from the two largest contributing states, MA and RI, are from the OSNE stock. Landings had declined at the end of the assessment in 2021 to the lowest values since the early 2010s. Landings have stabilized around these low levels since the assessment. Of note is a continued increasing trend in ME landings since the assessment which are primarily from the Inshore Gulf of Maine stock. Average annual ME landings since the assessment (2022-2024) have more than doubled from the previous three-year average at the end of the assessment (2019-2021). In Maine, due to continued issues in identification between Jonah crab and Atlantic rock crab, the Jonah crab landings include both Jonah and rock crab landings because the landings staff believe most of the landings entered as rock crab are actually Jonah crab landings.

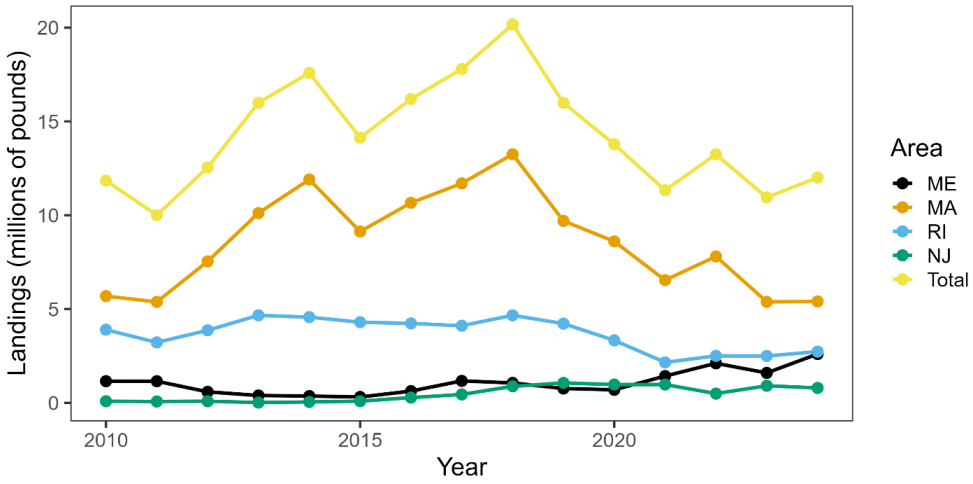

Figure 7. Landings of Jonah crab. Total landings include all Atlantic coast states with non-confidential annual values.

CPUE Indicators

Trip-level CPUE from RI had been declining since the mid-2010s to the lowest point of the time series at the end of the stock assessment in 2021. Low CPUE continued in 2022 but then increased significantly in 2023 and again in 2024 to the highest value of the time series. It is important to note that selection of "high liner" vessels changed since the stock assessment due to some vessels exiting the Jonah crab fishery. Supplementary data also indicates catch per day has declined while vessels have been conducting fewer, longer trips so CPUE data may be confounded by other drivers like market conditions and harvester behavior.

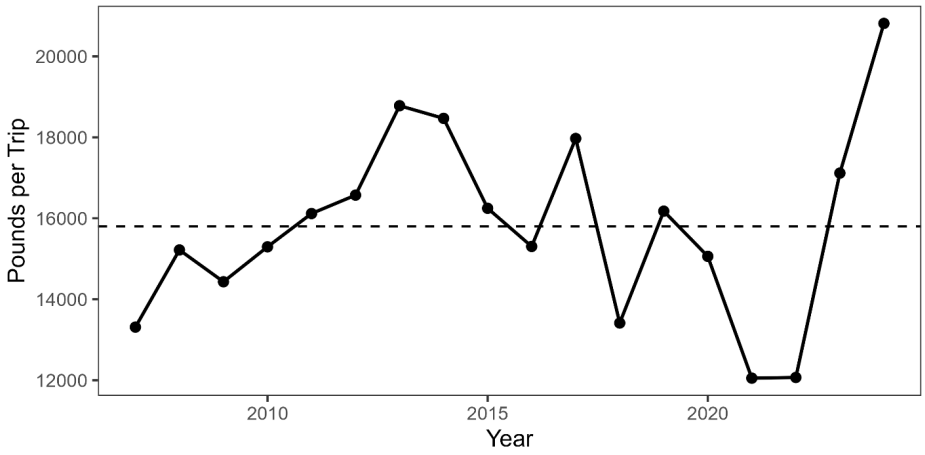

Figure 8. Pounds of Jonah crab landed per trip by the Rhode Island highliner fleet (n vessels=4) in the Offshore Southern New England stock. The dashed line is the time series mean.

CFRF ventless trap CPUE has been at lower levels since the end of the stock assessment, similar to levels at the beginning of the time series in the mid-2010s. Only three sessions were conducted in the terminal year of the assessment (2021), so an index value was not calculated for that year. A few caveats are important to keep in mind for this data set. This sampling program is intended to provide information on presence of sublegal lobsters and crabs and some temperature information and was not designed to measure abundance. Research Fleet participants decide when to record a sampling session and can decide not to record a session after hauling the traps (e.g., when inundated with crabs). Target species at the time/location of sampling sessions is not currently identified, which can impact catch rates. These data fields are anticipated moving forward and can be used to account for these impacts when calculating future CPUE.

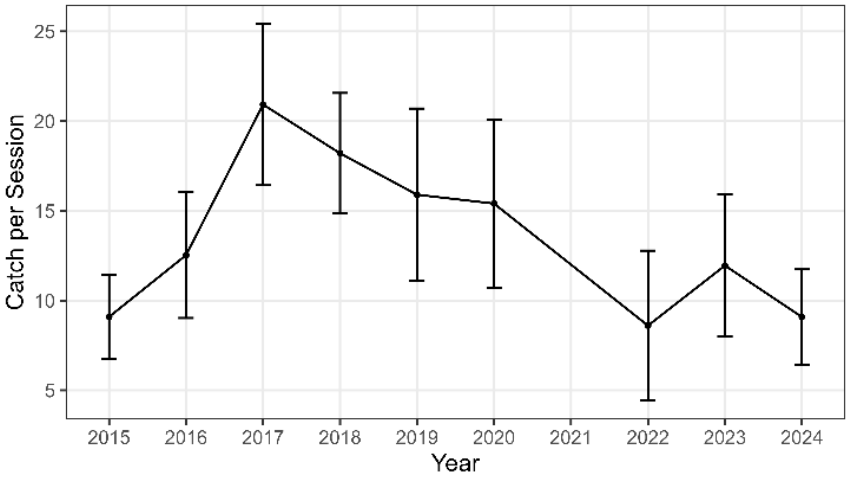

Figure 9. CFRF VTS CPUE of exploitable-sized (121 mm+ carapace width) male crabs in the in the Offshore Southern New England stock.

Price per Pound Indicators

In the indicator update last year, only nominal price data were presented. During this update, the TC recommended adding price data adjusted for inflation. These data were adjusted based on the unprocessed and prepared seafood producer price index (PPI) with 2024 as the base year (https://fred.stlouisfed.org/series/WPU0223), consistent with the methodology applied in the recent American lobster stock assessment. Nominal price per pound of both American lobster and Jonah crab has increased throughout most of the time series. Price per pound adjusted for inflation has been more stable through time. Notably, lobster prices increased sharply in 2021, the year of the lowest RI Jonah crab landings and second lowest MA Jonah crab landings since 2011. Jonah crab prices then increased sharply in 2022 when landings in RI and MA increased, albeit to levels lower than in the 2010s, while lobster prices returned to trending levels (nominal) or decreased (adjusted) relative to those observed before 2022. Jonah crab prices decreased in 2023 but remained high relative to years when landings were highest and in line with the underlying increasing or stable trends observed previously, depending on price type (nominal or adjusted). Prices reversed trend in all areas reported in 2024, decreasing to the lowest levels since 2020 while lobster prices did not decrease. There was some discussion of increased Jonah crab price per pound in preliminary 2025 data from some areas (MA), though data were not yet available for all areas. These data will be reviewed at the next indicator update in October.

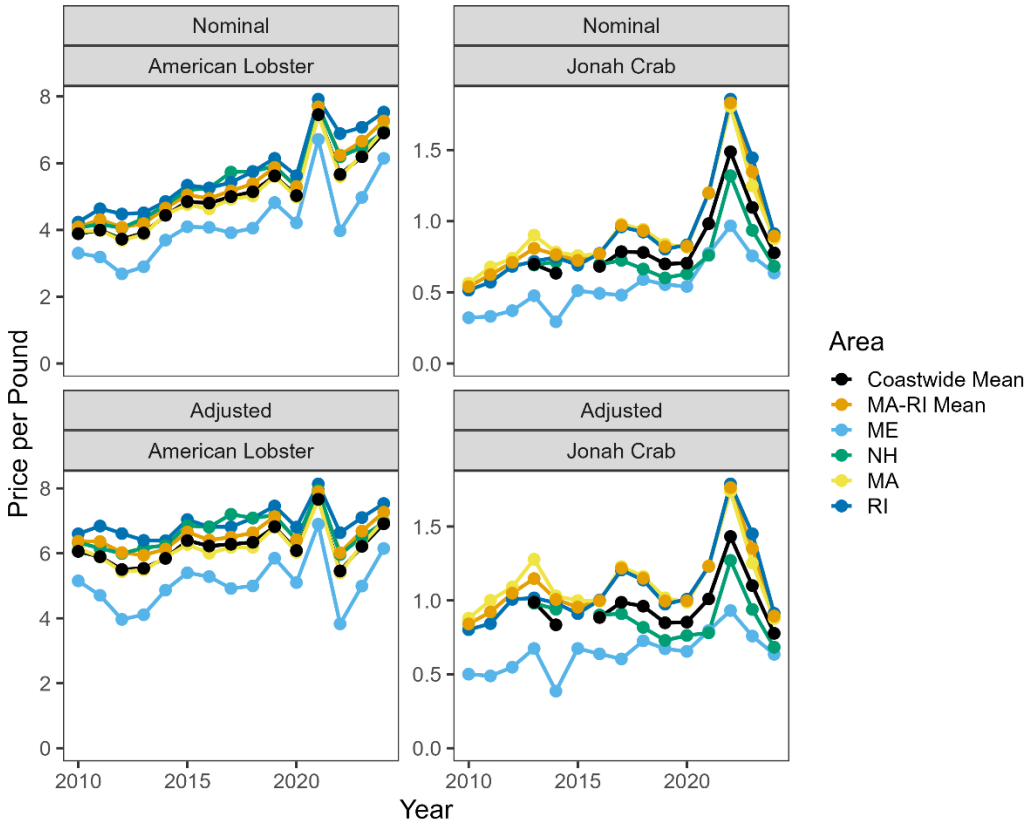

Figure 10. Price per pound (nominal and adjusted for inflation) of American lobster and Jonah crab.

Conclusions and Recommendations

The TC consensus is consistent with conclusions from the first indicator update. Stock conditions appear similar to what they were at the end of the assessment and data limitations preclude a recommendation for management intervention at this time. There remain indications that market factors, as indicated by poor fishery performance indicators, continue to be dominant factors influencing effort to target and land Jonah crabs. The additional fishery-independent abundance indicators available during this update do not support consistent changes in abundance since the stock assessment that would confirm abundance (i.e., availability) as a driver in these short-term fishery changes. Though these are the best available abundance data, there remains uncertainty in their ability to detect short-term changes in abundance and stock status.

Following the recommendation during the first indicator update to reconsider CFRF ventless trap CPUE data as an indicator, the TC recommends including the time series in the indicator update process. However, the TC cautions the market factors discussed above continue to impede interpretation of this and other available fishery-dependent indicators for inference on Jonah crab availability and abundance. The RI CPUE and MA effort indicators were affected by changes in the fleet. Some vessels considered “high liners” in the Jonah crab fishery have changed their trap configurations and shifted their effort to target lobsters or exited the fishery

altogether. There are also continued anecdotal reports of dealers imposing trip limits, causing artifacts in effort and price per pound data. While it does not affect the OSNE stock indicators, the TC also notes ME harvesters have reported relatively high catches of Jonah crabs recently that are primarily being discarded due to unfavorable market conditions.

As a next step in aiding interpretation of existing indicators, the TC recommends (1) comparing offshore wind farm survey data (e.g., Revolution Wind Farm and South Fork Wind Farm Surveys) to available indicators and (2) identifying a process to track dealer/processor-imposed trip limits, such as state-conducted dealer interviews that might provide context for changes in Jonah crab fishing effort or landings. Wind farm data streams are temporally and spatially limited, but additional years of data since the stock assessment have yet to be revisited. As a long-term recommendation, the TC reiterates its recommendation from the assessment to develop a camera-based survey for measuring Jonah crab abundance.

Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **American Lobster Management Board**

FROM: **American Lobster Technical Committee**

DATE: **January 20, 2026**

SUBJECT: **American Lobster Data Update through 2024**

Background

An annual Data Update process between American lobster stock assessments was recommended during the 2020 stock assessment to more closely monitor changes in stock abundance. The objective of this process is to present information—including any potentially concerning trends—that could support additional research or consideration of changes to management. Although a stock assessment was completed in 2025, the American Lobster Management Board (Board) requested at its August 2025 meeting that a Data Update also be conducted and presented at the February 2026 Board meeting. Data sets updated during this process are generally those that indicate exploitable lobster stock abundance conditions expected in subsequent years and include:

- Young-of-year (YOY) settlement indicators
- Trawl survey indicators, including recruit abundance (71-80 mm carapace length lobsters) and survey encounter rate
- Ventless trap survey (VTS) sex-specific abundance indices (53 mm+ carapace length lobsters)
- Combined recruit abundance (71-80 mm carapace length lobsters) from Gulf of Maine (GOM) state spring and fall trawl surveys and VTS

VTS abundance indices are presented here in addition to several abundance indicators used in the stock assessment. At its October 2025 meeting, the Board also tasked the Technical Committee (TC) to include a combined recruit index for the GOM/GBK stock, similar to that used in Addendum XXVII, as a part of future Data Updates to the Board. The combined recruit index presented in this update is consistent with the recruit index established in Addendum XXVII and averages relative recruit abundance across: 1) a combined Maine/New Hampshire and Massachusetts spring trawl survey three-year running average index, 2) a combined Maine/New Hampshire and Massachusetts fall trawl survey three-year running average index, and 3) a model-based VTS three-year running average index. Individual survey indices are scaled to their 2017 values so indices are on a consistent scale before combining into the combined recruit index. All data are from the Gulf of Maine sub-stock, so this index is presented with the Gulf of Maine sub-stock indicators.

This is the fifth Data Update and the first since the completion of the 2025 benchmark stock assessment (terminal data year of 2023). The update provides the standard Data Update indicators plus the new combined recruit index with data through 2024.

For all indicators other than the combined recruit index, an updated status based on the mean value over the most recent five years (2020-2024) is provided for each time series, for comparison to the five-year means provided at the end of the most recent stock assessment (2019-2023). Indicator status (negative, neutral, or positive – see table below) was determined relative to the percentiles of the stock

assessment time series excluding the final five years used to determine status in the stock assessment (i.e., 1st year of the data set through 2018). This treatment represents a change from previous updates that included status years in percentile calculations. This change was recommended by the Peer Review Panel of the 2025 assessment and subsequently adopted by the TC. Indicator figures have also been modified from previous updates to align with presentation adopted in the 2025 stock assessment. Annual data points are presented as shapes that indicate the status of the annual data point. A dashed red vertical line separates new data added in the current Data Update from data previously presented. A solid red horizontal line has been added at the current five-year mean used as status for comparison to the assessment status. This line is broken where missing data points occur during the five-year period. See Section 5 in the 2025 stock assessment report for more detail on indicator calculations.

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

For the combined recruit index, annual index values represent proportional change of the running three-year average from the peak three-year average (2015-2017). For example, the 2024 index value represents proportional change of the 2022-2024 average from the 2015-2017 average. The proportional changes in the combined index are expected to approximate comparable changes in overall future abundance of the stock. For more details on the combined recruit index calculations, see Addendum XXVII.

Note that updated five-year means for several trawl survey-based indicators updated during the 2025 assessment and in this Data Update remain impacted by COVID-19 survey disruptions and an additional (unrelated to COVID-19) survey disruption to the NEFSC trawl survey in Spring 2023. See the appendix for details on any data changes since the previous Data Update. Below are the results of updates by sub-stock.

Results

Gulf of Maine (GOM)

Overall, Gulf of Maine indicators show marginal changes since the stock assessment. Five of the seven 2024 annual values for MA 514 data sets are negative.

- YOY conditions show marginal improvements since the stock assessment (Table 1 and Figure 1).
    - Updated status for the statistical area (SA) 512 five-year mean improved from neutral to positive, while the other four remain neutral.
    - It is important to note that changes in YOY indicators are not expected to be detected in the recruit indicators for several years.
- Trawl survey recruit abundance indicators are unchanged since the stock assessment (Table 2 and Figure 2).
    - Three of the five-year means remain neutral and three remain positive.
    - The first negative annual value since 2010 was observed in 2024 (MA 514 spring).

    - Three annual values in 2024 decreased relative to 2023, while two increased (one is not available in 2023).
    - Five of six annual values are not available for 2020 due to COVID-19 sampling restrictions, and one is not available for 2023 (spring NEFSC) due to vessel issues.
- Trawl survey encounter rates show marginal deterioration since the stock assessment (Table 3 and Figure 3).
    - One of the updated five-year means changed from neutral to negative since the stock assessment. Both offshore means remain positive while the other three, all inshore, remain neutral.
    - Two annual values from the MA spring trawl survey are negative (2022, 2024), the first negative observations since 2008.
    - Note that the ME/NH survey encounter rates (spring and fall) are still high within a narrow range relative to other surveys.
    - Five of six annual values are not available for 2020 due to COVID-19 sampling restrictions, and one is not available for 2023 due to vessel issues.
- Ventless trap survey indices show marginal improvements since the stock assessment (Table 4 and Figure 4).
    - Updated status for one five-year mean improved from neutral to positive (SA 513 males), while three remain neutral and four remain negative.
    - Although categorical status for updated means show marginal improvement, the actual mean values declined for six of the eight indicators (all but SA 513).
    - Statuses are variable across the stock with no clear latitudinal pattern.
    - The indicators for SA 513 have been more stable through time than the indicators for the other three areas.
    - The first positive annual values since 2020 were observed in 2024 (SA 513 males).
- The combined recruit index stabilized at lower levels in 2024 following a decline from 2018-2023 (Figure 5).
    - The 2024 combined index value (2022-2024 average) is 0.56 which represents a 44% decline from the index peak in 2017 (2015-2017 average abundance of 1.00).
    - All individual indices contributing to the combined index show similar patterns across years.

Georges Bank (GBK)

Overall, Georges Bank indicators are unchanged since the stock assessment. Note that there are no YOY or VTS indicators for this sub-stock area.

- Trawl survey recruit abundance indicators are unchanged since the stock assessment (Table 5 and Figure 6).
    - Both updated five-year means remain neutral.
    - 2024 values are the highest annual values for their time series since the early 2000s.
    - No values are available for 2020 due to COVID-19 sampling restrictions and the spring value is not available for 2023 due to vessel issues.
- Trawl survey encounter rates are unchanged since the stock assessment (Table 6 and Figure 7).
    - The updated means both remain positive.
    - The annual values are at time series highs for both seasons in 2024.

- No values are available for 2020 due to COVID-19 sampling restrictions and the spring value is not available for 2023 due to vessel issues.

Southern New England (SNE)

Overall, Southern New England indicators show continued unfavorable conditions since the stock assessment. Most updated indicators are at or near time series lows.

- YOY conditions are unchanged since the stock assessment (Table 7 and Figure 8).
  - Updated status for the five-year means both remain negative.
  - No YOY have been caught during the MA survey for the last ten years.
  - The CT/ELIS YOY index presented in previous assessments and Data Updates is no longer updated due to survey changes in response to decreased catch rates. The index was last updated in 2021 and had a negative status reported during the stock assessment (2019-2021 average).
- Trawl survey recruit abundance indicators are unchanged since the stock assessment (Table 8 and Figure 9).
  - Updated status for the five-year means all remain negative.
  - Annual values for four of eight indicators are at time series lows in 2024, including two that observed no recruits (MA fall and CT fall).
  - Six of eight annual values are not available for 2020 due to COVID-19 sampling restrictions and the spring value is not available for 2023 due to vessel issues.
- Trawl survey encounter rates are unchanged since the stock assessment (Table 9 and Figure 10).
  - Updated status for the five-year means all remain negative.
  - Annual values for three of eight indicators are at time series lows in 2024, including one that observed no lobsters of any size (MA fall).
  - Six of eight annual values are not available for 2020 due to COVID-19 sampling restrictions and the spring value was not available for 2023 due to vessel issues.
- Ventless trap survey indices show slight deterioration since the stock assessment (Table 10 and Figure 11).
  - Updated status for one five-year mean deteriorated from neutral to negative, while three remain negative.
  - RI annual values in 2024 show relatively large increases for both sexes.
  - It is important to note that the ventless trap survey has only taken place during depleted stock conditions coinciding with an adverse environmental regime, so interannual variability can be misleading without the context of a longer time series encompassing varying stock conditions.

Tables and Figures

Table 1. GOM abundance indicators: YOY indices.

YOUNG-OF-YEAR INDICES					
Survey	*ME*				*MA*
	511	*512*	*513 East*	*513 West*	*514*
1981					
1982					
1983					
1984					
1985					
1986					
1987					
1988					
1989			1.64		
1990			0.77		
1991			1.54		
1992			1.30		
1993			0.45		
1994			1.61		
1995		0.02	0.66		0.91
1996		0.05	0.47		
1997		0.05	0.46		0.10
1998		0.00	0.14		0.03
1999		0.04	0.65		0.43
2000	0.00	0.10	0.13	0.17	0.07
2001	0.24	0.43	2.08	1.17	0.39
2002	0.13	0.29	1.38	0.85	1.00
2003	0.22	0.27	1.75	1.22	0.75
2004	0.18	0.36	1.75	0.67	1.02
2005	1.42	1.25	2.40	1.12	1.06
2006	0.49	1.06	1.57	1.08	0.45
2007	0.59	1.11	2.23	1.30	1.27
2008	0.32	0.59	1.27	1.10	0.33
2009	0.66	0.33	1.51	0.48	0.17
2010	0.16	0.64	1.25	0.63	0.44
2011	0.41	0.98	2.33	0.90	0.58
2012	0.44	0.62	1.27	0.30	0.08
2013	0.09	0.22	0.34	0.12	0.00
2014	0.16	0.47	1.04	0.42	0.11
2015	0.15	0.22	0.42	0.03	0.00
2016	0.13	0.21	0.42	0.14	0.08
2017	0.21	0.36	0.65	0.23	0.08
2018	0.27	0.34	0.62	0.22	0.03
2019	0.43	0.64	0.94	0.45	0.06
2020	0.29	0.51	1.06	0.33	0.19
2021	0.06	0.12	0.38	0.28	0.28
2022	0.13	0.59	0.71	0.42	0.11
2023	0.44	0.95	1.43	0.57	0.22
2019-2023 mean	0.27	0.56	0.90	0.41	0.17
2024	0.50	0.82	1.15	0.59	0.08
2020-2024 mean	0.28	0.60	0.95	0.44	0.18

25th	0.16	0.18	0.51	0.23	0.08
median	0.22	0.34	1.26	0.63	0.33
75th	0.43	0.60	1.60	1.09	0.67

Figure 1. GOM abundance indicators: YOY indices.

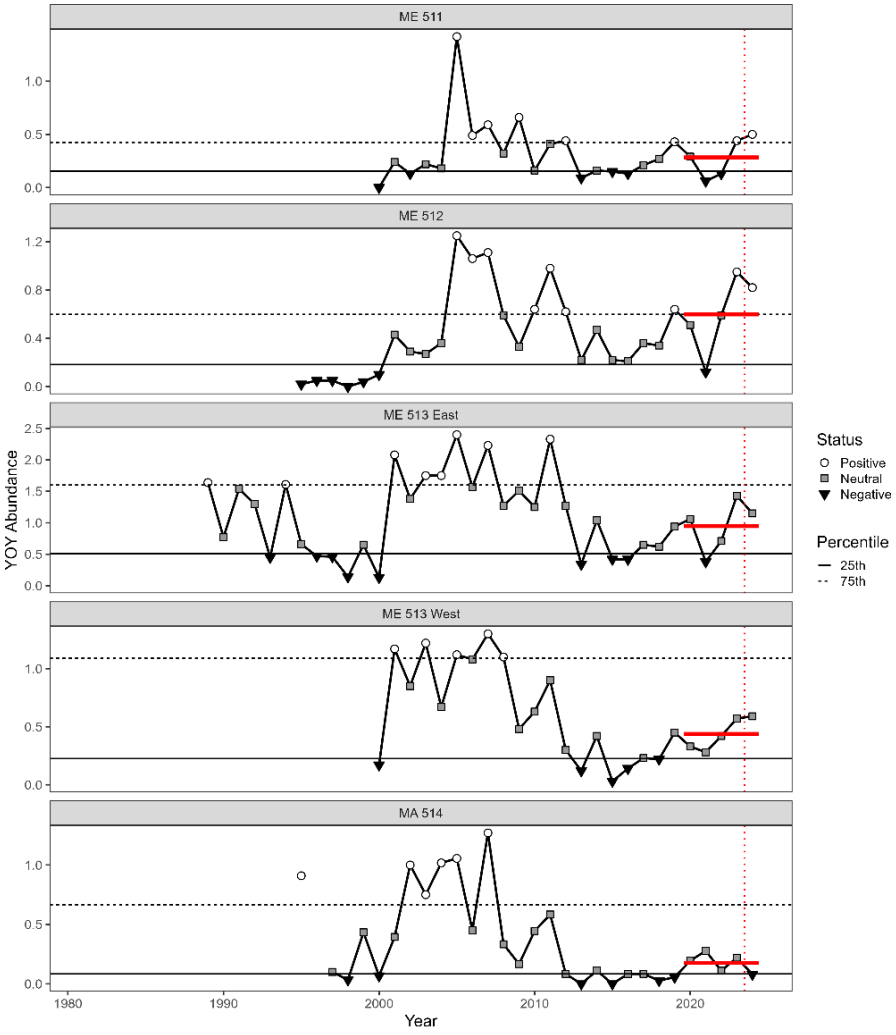

Table 2. GOM abundance indicators: trawl survey recruit abundance.

RECRUIT ABUNDANCE (SURVEY)						
Abundance of lobsters 71 - 80 mm CL (sexes combined)						
Survey	*NEFSC*		*ME/NH*		*MA 514*	
	Spring	*Fall*	*Spring*	*Fall*	*Spring*	*Fall*
1981	0.17	0.23			6.38	4.84
1982	0.29	0.43			2.74	3.85
1983	0.31	2.57			1.76	9.76
1984	0.22	2.57			2.15	6.13
1985	0.16	1.42			4.48	9.60
1986	0.29	3.33			3.01	3.80
1987	0.78	0.59			2.47	1.16
1988	0.78	2.94			2.52	4.12
1989	0.52	2.56			4.48	7.51
1990	0.37	2.88			6.11	15.36
1991	0.64	1.45			2.73	7.55
1992	0.54	1.39			4.31	8.95
1993	0.39	1.98			5.12	3.19
1994	0.17	5.39			7.59	13.77
1995	1.50	3.73			4.54	12.12
1996	0.78	4.74			3.09	12.10
1997	2.07	3.85			4.59	6.46
1998	1.64	2.66			4.50	7.47
1999	1.51	3.11			4.29	8.73
2000	4.84	3.10		24.09	4.24	8.87
2001	1.09	1.55	9.28	17.81	4.32	1.58
2002	1.14	1.97	22.00	22.41	3.43	5.00
2003	1.45	0.78	10.65	18.32	1.96	0.66
2004	0.87	2.75	7.55	12.29	2.46	1.30
2005	0.35	0.95	18.51	25.90	4.35	2.11
2006	2.23	1.29	18.07	18.30	6.09	5.30
2007	1.66	0.65	15.91	16.82	0.77	1.61
2008	1.01	2.47	17.88	31.61	2.54	6.12
2009	2.22	2.25	24.72	32.67	3.19	8.88
2010	1.38	2.46	17.66	37.35	2.22	9.39
2011	4.67	5.43	39.25	46.09	5.24	15.04
2012	5.12	3.10	36.55	37.12	3.03	11.30
2013	4.89	8.17	34.50	37.86	4.83	12.20
2014	5.20	9.70	50.79	41.95	3.35	7.06
2015	6.54	8.18	38.51	67.99	7.05	17.91
2016	6.04	10.21	50.83	60.07	13.61	17.41
2017	7.04	6.02	48.42	48.13	7.85	13.58
2018	6.35	6.25	42.77	55.84	5.25	25.69
2019	7.52	3.52	46.37	50.85	10.69	14.59
2020				34.65		
2021	4.64	3.69	32.86	32.19	6.39	10.16
2022	5.35	3.79	22.78	24.86	8.61	6.27
2023		7.62	25.08	32.09	4.51	8.78
2019-2023 mean	5.84	4.65	31.77	34.93	7.55	9.95
2024	4.06	5.80	33.11	40.73	2.65	6.28
2020-2024 mean	4.69	5.22	28.46	32.90	5.54	7.87
25th	0.42	1.47	17.72	20.37	2.73	4.30
median	1.11	2.61	23.36	32.67	4.30	7.53
75th	2.23	3.82	39.07	44.02	5.05	11.90

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

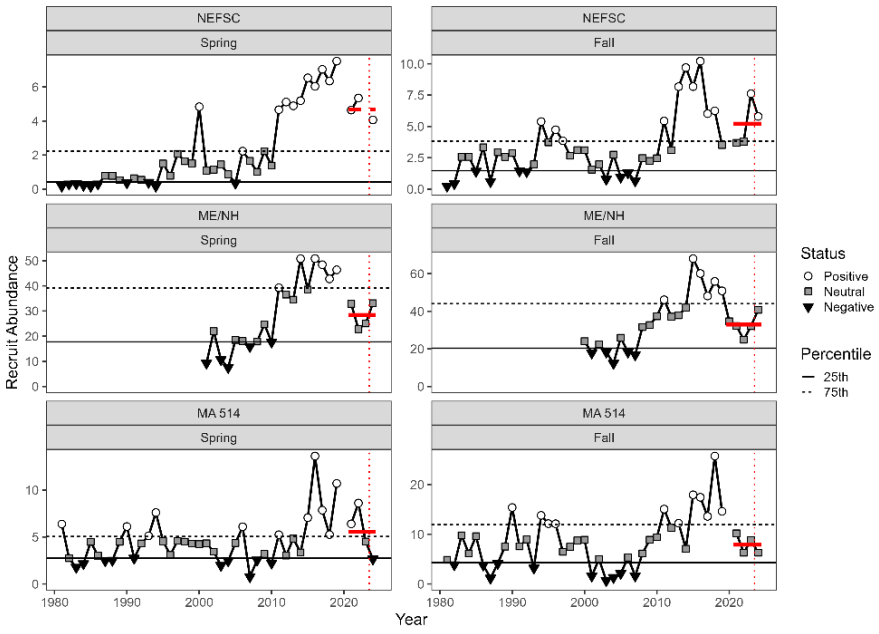

Table 3. GOM abundance indicators: trawl survey encounter rate.

SURVEY LOBSTER ENCOUNTER RATE						
Proportion of postive tows						
Survey	NEFSC		ME/NH		MA 514	
	Spring	Fall	Spring	Fall	Spring	Fall
1981	0.45	0.28			0.86	0.73
1982	0.35	0.24			0.50	0.70
1983	0.30	0.38			0.76	0.76
1984	0.30	0.41			0.76	0.76
1985	0.38	0.49			0.71	0.67
1986	0.34	0.49			0.68	0.83
1987	0.42	0.24			0.85	0.54
1988	0.38	0.38			0.76	0.58
1989	0.37	0.43			0.78	0.95
1990	0.45	0.34			0.86	0.95
1991	0.41	0.32			0.87	0.94
1992	0.44	0.24			0.93	0.77
1993	0.44	0.41			0.97	0.82
1994	0.45	0.42			1.00	0.93
1995	0.43	0.44			0.93	0.93
1996	0.54	0.54			0.91	0.96
1997	0.64	0.38			0.93	0.86
1998	0.52	0.41			0.76	0.69
1999	0.52	0.42			0.73	0.91
2000	0.64	0.44		0.94	0.93	0.98
2001	0.56	0.42	0.88	0.86	0.93	0.72
2002	0.76	0.53	0.94	0.95	0.91	0.73
2003	0.69	0.49	0.92	0.85	0.82	0.55
2004	0.86	0.36	0.89	0.86	0.84	0.56
2005	0.77	0.38	0.95	0.91	0.95	0.67
2006	0.72	0.60	0.93	0.93	0.91	0.88
2007	0.72	0.43	0.97	0.85	0.51	0.54
2008	0.84	0.49	0.92	0.86	0.83	0.75
2009	0.82	0.63	0.98	0.92	0.89	0.87
2010	0.85	0.78	0.98	0.96	0.87	0.98
2011	0.83	0.74	0.99	0.96	0.89	0.85
2012	0.86	0.78	0.98	0.98	0.91	0.95
2013	0.87	0.73	1.00	0.93	0.96	0.96
2014	0.90	0.71	1.00	0.99	0.79	0.96
2015	0.93	0.69	1.00	0.96	0.98	0.95
2016	0.94	0.75	1.00	0.96	0.96	0.97
2017	0.86	0.82	0.99	0.94	0.84	0.98
2018	0.86	0.77	0.98	0.96	0.84	0.90
2019	0.83	0.71	0.99	0.95	0.85	0.92
2020				0.96		
2021	0.90	0.75	1.00	0.91	0.86	0.90
2022	0.79	0.76	0.98	0.90	0.78	0.85
2023		0.80	0.96	0.91	0.85	0.83
2019-2023 mean	0.84	0.75	0.98	0.93	0.84	0.88
2024	0.88	0.75	0.98	0.95	0.62	0.95
2020-2024 mean	0.85	0.77	0.98	0.93	0.78	0.88

25th	0.43	0.38	0.93	0.89	0.78	0.72
median	0.60	0.44	0.98	0.94	0.86	0.86
75th	0.84	0.62	0.99	0.96	0.93	0.95

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

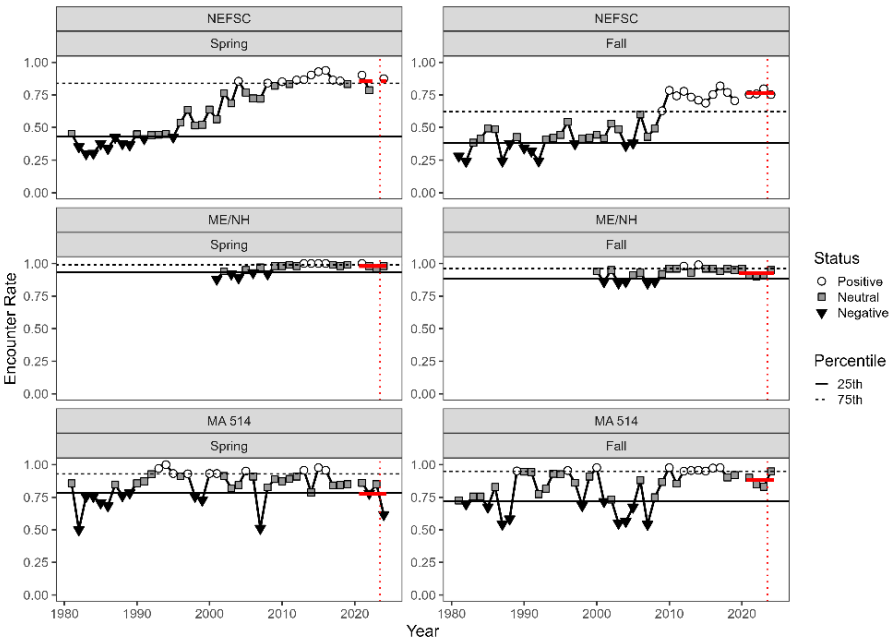

Table 4. GOM abundance indicators: ventless trap survey abundance.

VENTLESS TRAP ABUNDANCE Abundance of lobsters ≥ 53 mm CL								
Survey	*511*		*512*		*513*		*514*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
1981								
1982								
1983								
1984								
1985								
1986								
1987								
1988								
1989								
1990								
1991								
1992								
1993								
1994								
1995								
1996								
1997								
1998								
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2004								
2005								
2006	7.66	5.35	6.87	5.36	5.71	4.33	3.08	3.38
2007	5.07	3.92	3.95	3.81	5.79	4.29	1.85	1.83
2008	4.94	3.87	5.79	4.93	5.73	4.91	2.75	2.50
2009	3.60	2.65	6.30	5.33	6.86	5.48	2.71	2.65
2010	5.66	3.89	6.96	5.67	6.59	5.22	2.48	2.20
2011	8.70	6.52	11.12	8.46	7.29	5.54	3.46	2.59
2012	10.94	7.63	12.06	9.43	11.43	7.70	5.21	4.51
2013	11.17	7.95	11.91	8.64	9.35	6.45		
2014	10.41	6.63	11.95	8.03	7.74	4.94	3.15	2.34
2015	8.50	4.64	10.41	7.67	8.56	5.45	4.01	3.15
2016	14.61	9.15	14.39	10.72	10.77	7.49	4.78	3.55
2017	11.71	7.07	11.64	8.50	8.46	5.52	3.38	2.45
2018	15.12	9.43	11.30	8.21	9.58	6.34	3.47	2.42
2019	12.96	8.28	8.24	5.93	8.66	5.20	2.85	1.92
2020	7.68	5.48	7.94	5.95	9.26	6.55	2.50	1.68
2021	7.35	5.44	5.97	5.23	8.25	5.90	1.76	1.37
2022	6.70	4.96	4.86	4.21	7.84	6.19	1.62	0.96
2023	4.95	3.86	5.17	4.56	8.35	6.31	1.81	1.50
2019-2023 mean	7.93	5.60	6.44	5.18	8.47	6.03	2.11	1.49
2024	5.99	4.36	6.02	4.73	9.48	7.38	1.58	0.99
2020-2024 mean	6.53	4.82	5.99	4.94	8.63	6.47	1.86	1.30
25th	5.66	3.92	6.87	5.36	6.59	4.94	2.74	2.40
median	8.70	6.52	11.12	8.03	7.74	5.48	3.26	2.54
75th	11.17	7.63	11.91	8.50	9.35	6.34	3.61	3.21

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

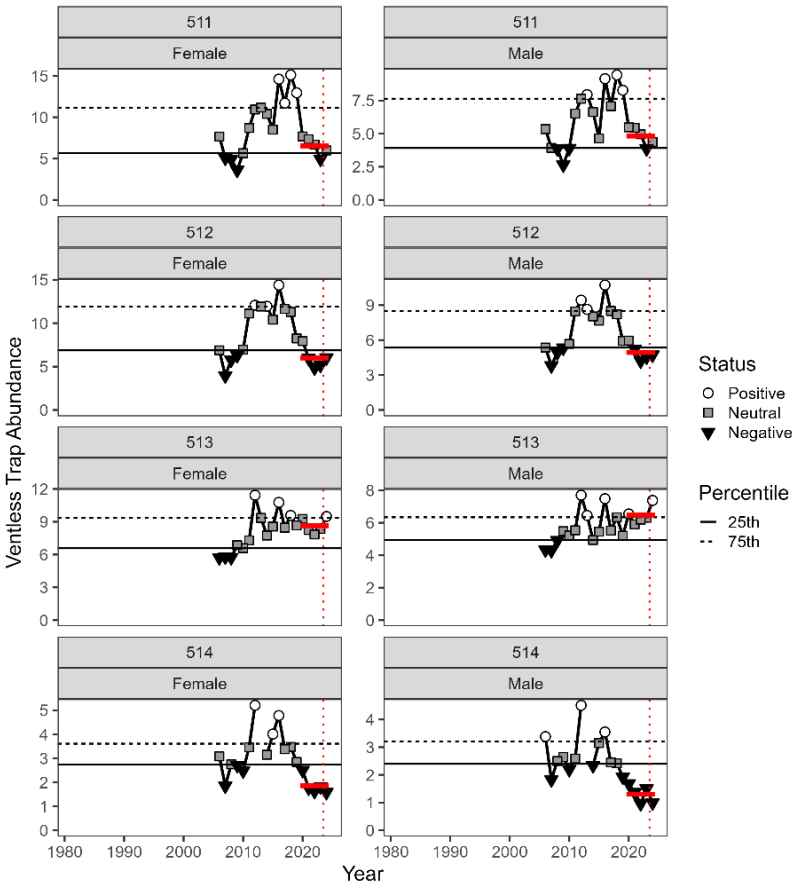


Figure 5. GOM recruit abundance indices aggregated into a combined index (top) and presented individually.

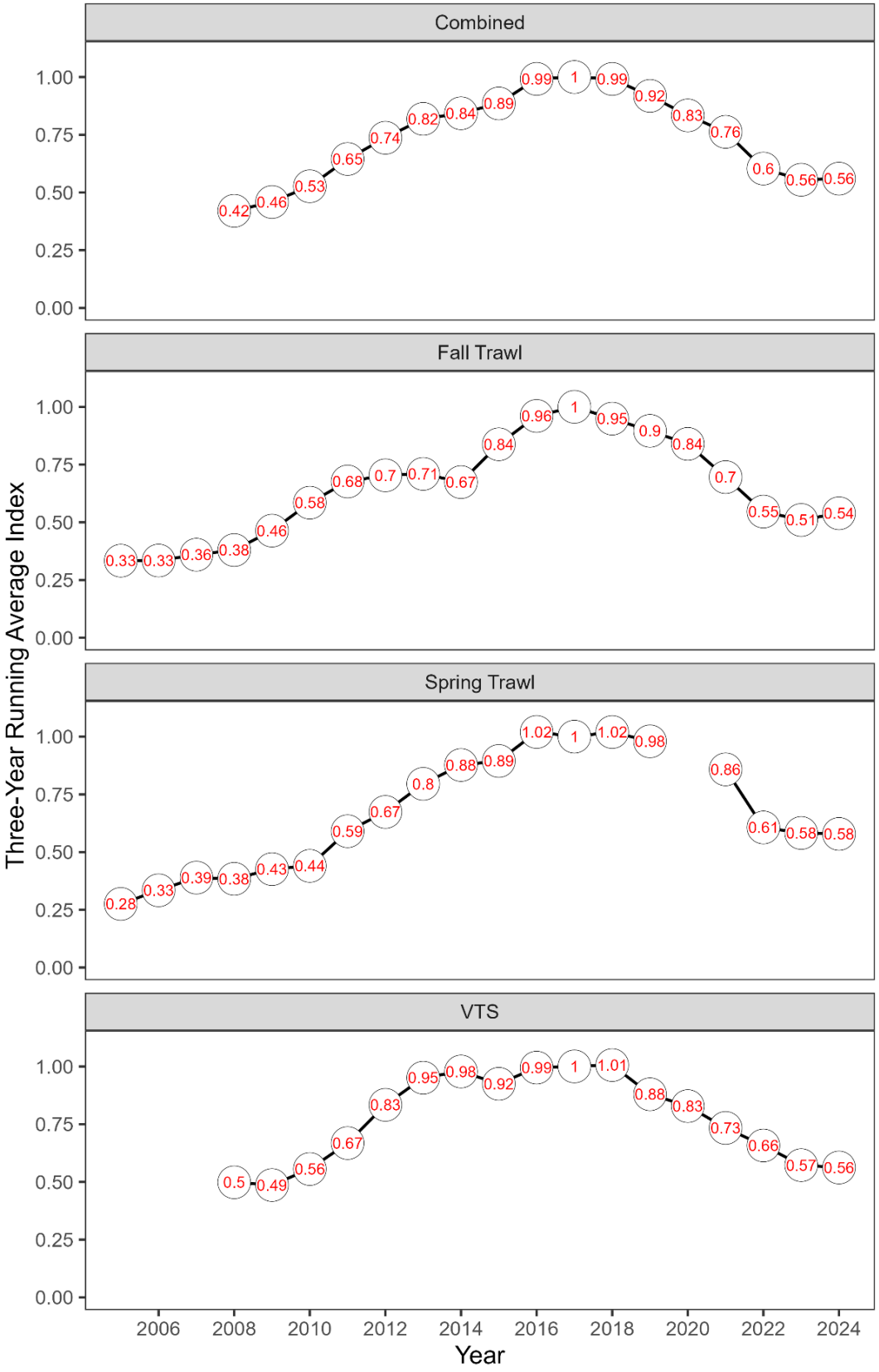


Table 5. GBK abundance indicators: trawl survey recruit abundance.

RECRUIT ABUNDANCE (SURVEY)		
Abundance of lobsters 71 - 80 mm CL (sexes combined)		
Survey	*NEFSC*	
	Spring	*Fall*
1981	0.07	0.30
1982	0.19	0.42
1983	0.17	0.19
1984	0.01	0.33
1985	0.12	0.06
1986	0.56	0.67
1987	0.45	0.57
1988	0.09	0.40
1989	0.04	0.14
1990	0.46	0.33
1991	0.08	0.31
1992	0.16	0.64
1993	0.49	0.23
1994	0.68	0.12
1995	0.00	0.22
1996	0.66	0.16
1997	0.76	0.92
1998	0.72	0.12
1999	0.60	0.29
2000	0.31	0.24
2001	1.26	0.37
2002	0.79	0.64
2003	0.32	0.18
2004	0.11	0.20
2005	0.05	0.14
2006	0.23	0.18
2007	0.03	0.13
2008	0.06	0.17
2009	0.13	0.17
2010	0.13	0.08
2011	0.04	0.16
2012	0.07	0.08
2013	0.07	0.14
2014	0.07	0.09
2015	0.03	0.19
2016	0.07	0.06
2017	0.16	0.19
2018	0.02	0.10
2019	0.07	0.06
2020		
2021	0.18	0.20
2022	0.19	0.27
2023		0.36
2019-2023 mean	0.15	0.22
2024	0.25	0.45
2020-2024 mean	0.21	0.32

25th	0.07	0.14
median	0.13	0.19
75th	0.45	0.32

Figure 6. GBK abundance indicators: trawl survey recruit abundance.

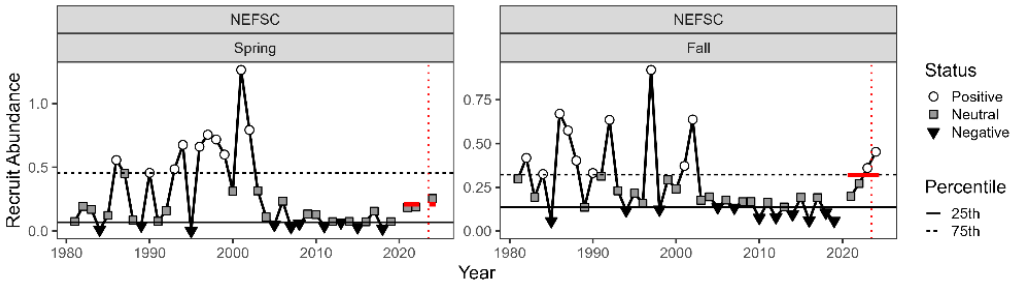


Table 6. GBK abundance indicators: trawl survey encounter rate.

SURVEY LOBSTER ENCOUNTER RATE		
Proportion of postive tows		
Survey	*NEFSC*	
	Spring	*Fall*
1981	0.26	0.52
1982	0.23	0.43
1983	0.20	0.38
1984	0.12	0.36
1985	0.21	0.38
1986	0.25	0.36
1987	0.19	0.34
1988	0.34	0.39
1989	0.19	0.39
1990	0.20	0.41
1991	0.20	0.42
1992	0.28	0.47
1993	0.22	0.36
1994	0.14	0.39
1995	0.13	0.42
1996	0.18	0.37
1997	0.13	0.49
1998	0.13	0.38
1999	0.19	0.56
2000	0.24	0.38
2001	0.26	0.47
2002	0.28	0.57
2003	0.26	0.43
2004	0.19	0.51
2005	0.17	0.56
2006	0.26	0.57
2007	0.25	0.46
2008	0.30	0.52
2009	0.33	0.55
2010	0.36	0.63
2011	0.30	0.69
2012	0.35	0.58
2013	0.33	0.66
2014	0.37	0.61
2015	0.27	0.59
2016	0.45	0.55
2017	0.40	0.56
2018	0.29	0.59
2019	0.36	0.57
2020		
2021	0.41	0.48
2022	0.34	0.62
2023		0.73
2019-2023 mean	0.37	0.60
2024	0.46	0.76
2020-2024 mean	0.40	0.65

25th	0.19	0.39
median	0.25	0.47
75th	0.30	0.56

Figure 7. GBK abundance indicators: trawl survey encounter rate.

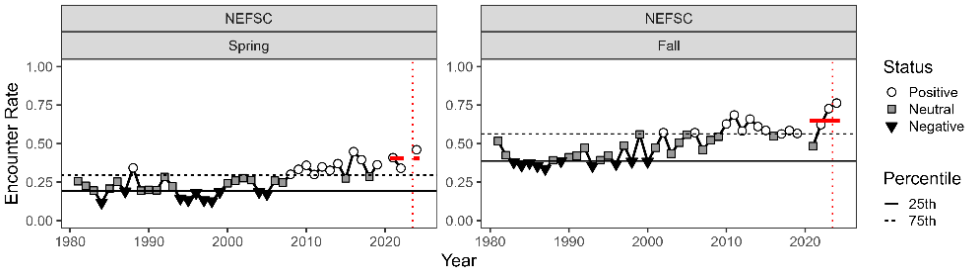


Table 7. SNE abundance indicators: YOY indices.

YOUNG-OF-YEAR INDICES		
Survey	***MA***	***RI***
1981		
1982		
1983		
1984		
1985		
1986		
1987		
1988		
1989		
1990		1.13
1991		1.45
1992		0.63
1993		0.51
1994		1.21
1995	0.17	0.34
1996	0.00	0.15
1997	0.08	0.96
1998	0.28	0.54
1999	0.06	0.91
2000	0.33	0.28
2001	0.11	0.72
2002	0.11	0.25
2003	0.00	0.70
2004	0.06	0.40
2005	0.17	0.54
2006	0.22	0.44
2007	0.17	0.54
2008	0.00	0.14
2009	0.06	0.06
2010	0.00	0.08
2011	0.00	0.00
2012	0.00	0.09
2013	0.17	0.19
2014	0.11	0.22
2015	0.00	0.17
2016	0.00	0.03
2017	0.00	0.03
2018	0.00	0.03
2019	0.00	0.03
2020	0.00	0.14
2021	0.00	0.08
2022	0.00	0.03
2023	0.00	0.01
2019-2023 mean	0.00	0.06
2024	0.00	0.04
2020-2024 mean	0.00	0.06

25th	0.00	0.14
median	0.06	0.34
75th	0.17	0.63

Figure 8. SNE abundance indicators: YOY indices.

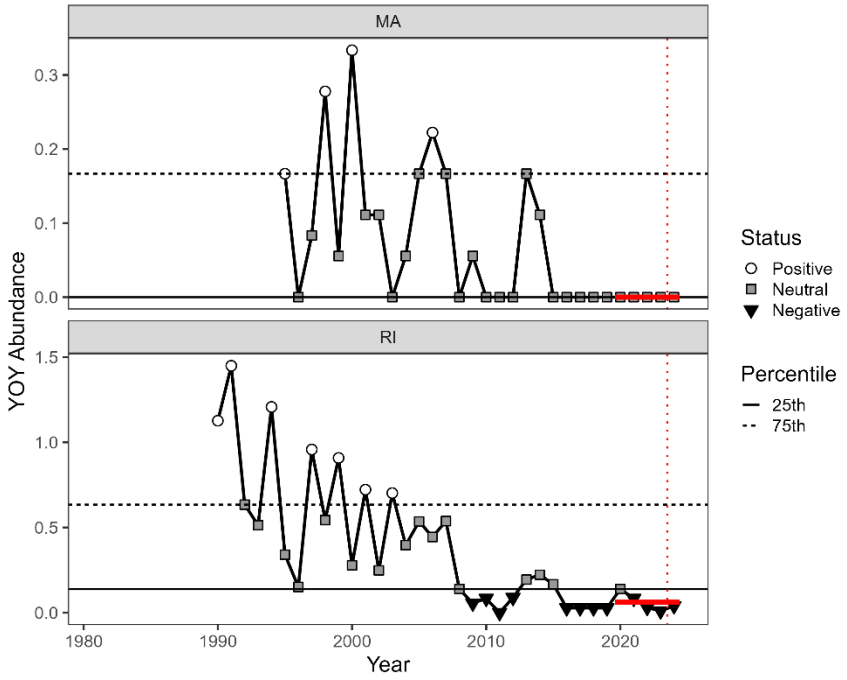


Table 8. SNE abundance indicators: trawl survey recruit abundance.

RECRUIT ABUNDANCE (SURVEY)								
Abundance of lobsters 71 - 80 mm CL (sexes combined)								
Survey	*NEFSC*		*MA*		*RI*		*CT*	
	Spring	*Fall*	*Spring*	*Fall*	*Spring*	*Fall*	*Spring*	*Fall*
1981	0.17	1.40	0.65	0.07	0.89	1.31		
1982	1.13	1.15	0.10	0.04	0.26	0.64		
1983	0.61	1.12	0.09	0.04	0.94	0.43		
1984	0.15	1.31	0.42	0.01	1.03	1.36	10.09	6.80
1985	3.05	1.65	0.34	0.09	0.28	0.97	3.08	3.93
1986	0.28	0.92	0.17	0.20	0.91	1.28	2.77	5.76
1987	1.54	0.96	0.26	0.17	0.79	3.14	2.93	6.86
1988	1.23	1.00	0.24	0.16	0.47	4.05	1.85	4.88
1989	0.15	2.57	0.14	0.43	0.91	3.26	4.86	5.28
1990	1.06	1.63	2.29	0.31	2.17	2.69	6.89	7.74
1991	0.47	0.98	1.18	0.87	4.77	3.10	10.83	10.32
1992	0.30	1.57	0.10	0.57	0.62	1.97	10.31	10.65
1993	1.02	0.61	0.25	0.52	7.81	8.29	7.78	15.18
1994	0.33	0.69	0.95	0.42	1.00	3.88	5.07	11.51
1995	0.13	0.93	1.14	0.03	1.33	4.50	12.13	11.20
1996	0.62	3.76	0.40	0.32	1.60	6.55	11.37	11.08
1997	2.62	2.49	1.45	0.12	2.58	6.10	15.42	24.99
1998	1.22	1.84	1.09	0.11	1.63	3.24	24.06	12.72
1999	3.74	1.21	0.75	0.19	1.71	2.07	24.57	12.96
2000	1.12	2.17	0.56	0.13	1.54	1.83	13.37	8.27
2001	0.60	0.86	0.18	0.03	2.97	2.17	10.77	7.41
2002	2.48	0.65	0.34	0.00	2.68	0.73	8.07	2.75
2003	0.55	0.67	0.07	0.00	0.29	0.93	3.52	4.08
2004	0.43	0.56	0.05	0.00	1.87	1.48	2.38	3.37
2005	0.22	0.51	0.08	0.00	1.07	2.53	2.26	1.54
2006	0.29	0.49	0.08	0.03	3.63	2.24	2.02	1.38
2007	0.30	0.55	0.08	0.00	0.68	2.68	2.65	1.12
2008	0.32	0.53	0.16	0.01	0.64	2.95	2.20	1.27
2009	0.10	0.24	0.16	0.05	1.14	1.36	1.20	1.33
2010	0.16	0.49	0.06	0.18	0.44	1.21	1.26	
2011	0.03	0.46	0.18	0.00	0.42	1.02	0.43	0.18
2012	0.07	0.70	0.07	0.21	0.30	0.18	0.44	0.08
2013	0.08	0.32	0.11	0.04	0.16	0.02	0.23	0.06
2014	1.47	0.49	0.04	0.00	0.02	0.14	0.15	0.05
2015	0.00	0.17	0.07	0.30	0.05	0.37	0.15	0.06
2016	0.57	0.47	0.05	0.14	0.57	0.25	0.16	0.00
2017	0.05		0.13	0.16	0.14	0.41	0.03	0.00
2018	0.05	0.27	0.02	0.01	0.18	0.68	0.00	0.01
2019	0.04	0.29	0.01	0.02	0.52	0.50	0.03	0.00
2020					0.23	0.32		
2021	0.00	0.43	0.01	0.00	0.27	0.07	0.03	0.00
2022	0.05	0.15	0.00	0.00	0.09	0.16	0.00	0.01
2023		0.14	0.00	0.01	0.07	0.05	0.00	0.00
2019-2023 mean	0.03	0.25	0.01	0.01	0.24	0.22	0.01	0.00
2024	0.10	0.07	0.05	0.00	0.02	0.07	0.01	0.00
2020-2024 mean	0.05	0.20	0.02	0.00	0.14	0.13	0.01	0.00

25th	0.15	0.51	0.08	0.02	0.42	0.78	1.23	1.16
median	0.38	0.86	0.16	0.10	0.91	1.65	2.93	4.48
75th	1.11	1.31	0.41	0.19	1.62	3.07	10.20	9.81

Figure 9. SNE abundance indicators: trawl survey recruit abundance.

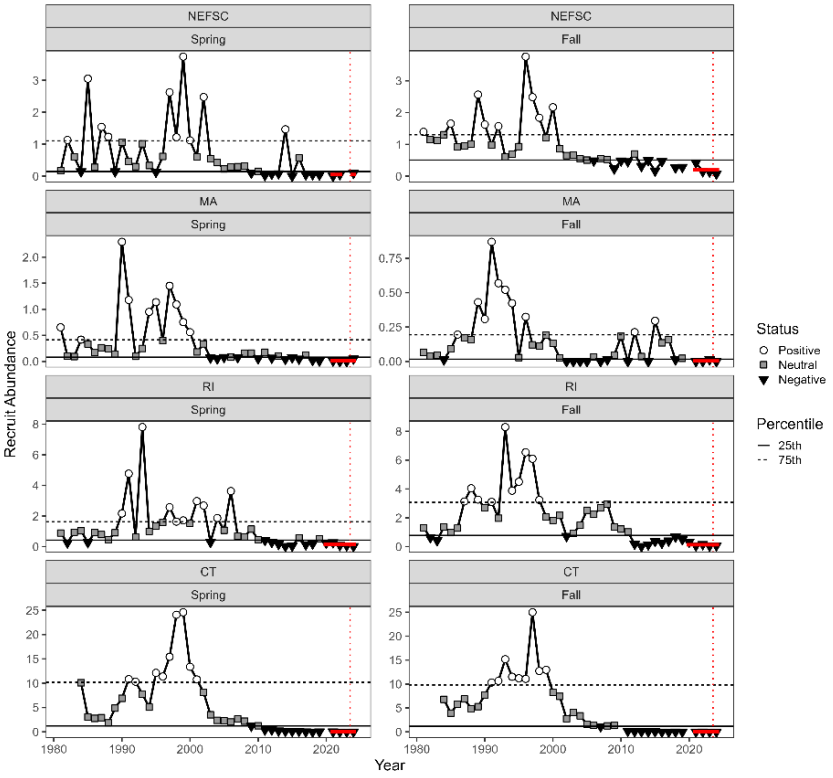


Table 9. SNE abundance indicators: trawl survey encounter rate.

SURVEY LOBSTER ENCOUNTER RATE								
Proportion of postive tows								
Survey	*NEFSC*		*MA*		*RI*		*CT*	
	Spring	*Fall*	*Spring*	*Fall*	*Spring*	*Fall*	*Spring*	*Fall*
1981	0.26	0.67	0.38	0.15	0.49	0.41		
1982	0.35	0.52	0.28	0.21	0.30	0.44		
1983	0.18	0.43	0.21	0.16	0.47	0.37		
1984	0.10	0.44	0.40	0.18	0.59	0.44	0.63	0.76
1985	0.29	0.47	0.51	0.22	0.31	0.50	0.57	0.69
1986	0.22	0.40	0.39	0.39	0.64	0.46	0.67	0.61
1987	0.19	0.41	0.28	0.18	0.35	0.47	0.63	0.76
1988	0.17	0.46	0.39	0.21	0.49	0.55	0.65	0.66
1989	0.18	0.53	0.50	0.33	0.52	0.57	0.75	0.63
1990	0.18	0.63	0.66	0.44	0.64	0.53	0.73	0.76
1991	0.20	0.56	0.41	0.40	0.77	0.69	0.81	0.77
1992	0.29	0.48	0.51	0.23	0.41	0.57	0.77	0.68
1993	0.20	0.40	0.54	0.27	0.50	0.71	0.73	0.75
1994	0.17	0.41	0.51	0.20	0.58	0.57	0.73	0.74
1995	0.09	0.51	0.44	0.13	0.55	0.67	0.77	0.68
1996	0.16	0.57	0.30	0.16	0.79	0.76	0.66	0.78
1997	0.39	0.43	0.45	0.21	0.75	0.71	0.71	0.81
1998	0.16	0.54	0.54	0.13	0.59	0.55	0.83	0.71
1999	0.29	0.44	0.41	0.21	0.76	0.59	0.78	0.79
2000	0.23	0.49	0.45	0.15	0.68	0.63	0.81	0.73
2001	0.29	0.39	0.28	0.18	0.65	0.60	0.77	0.58
2002	0.25	0.38	0.28	0.03	0.61	0.45	0.73	0.59
2003	0.17	0.44	0.14	0.03	0.51	0.41	0.71	0.64
2004	0.17	0.29	0.28	0.03	0.54	0.50	0.61	0.66
2005	0.14	0.32	0.34	0.15	0.49	0.45	0.63	0.54
2006	0.21	0.35	0.43	0.03	0.79	0.62	0.61	0.51
2007	0.19	0.33	0.34	0.10	0.44	0.54	0.70	0.53
2008	0.15	0.41	0.33	0.10	0.55	0.52	0.63	0.65
2009	0.24	0.46	0.50	0.05	0.57	0.41	0.49	0.55
2010	0.19	0.52	0.23	0.24	0.47	0.45	0.54	
2011	0.17	0.56	0.18	0.05	0.30	0.23	0.46	0.28
2012	0.19	0.56	0.18	0.15	0.27	0.16	0.43	0.20
2013	0.09	0.47	0.18	0.08	0.21	0.09	0.28	0.15
2014	0.22	0.41	0.13	0.08	0.07	0.23	0.26	0.10
2015	0.08	0.40	0.10	0.05	0.12	0.16	0.27	0.10
2016	0.21	0.38	0.08	0.11	0.30	0.14	0.25	0.03
2017	0.09		0.08	0.16	0.16	0.23	0.08	0.03
2018	0.12	0.42	0.11	0.06	0.09	0.18	0.09	0.01
2019	0.10	0.41	0.05	0.11	0.16	0.11	0.09	0.00
2020					0.16	0.16		
2021	0.04	0.29	0.07	0.00	0.20	0.12	0.06	0.03
2022	0.10	0.29	0.00	0.00	0.14	0.09	0.01	0.04
2023		0.29	0.00	0.03	0.18	0.05	0.00	0.01
2019-2023 mean	0.08	0.32	0.03	0.04	0.17	0.11	0.04	0.02
2024	0.15	0.26	0.03	0.00	0.02	0.07	0.03	0.01
2020-2024 mean	0.10	0.28	0.02	0.01	0.14	0.10	0.02	0.02

25th	0.17	0.40	0.21	0.08	0.32	0.41	0.52	0.52
median	0.19	0.44	0.34	0.16	0.51	0.49	0.65	0.64
75th	0.23	0.52	0.44	0.21	0.60	0.57	0.73	0.74

Figure 10. SNE abundance indicators: trawl survey encounter rate.

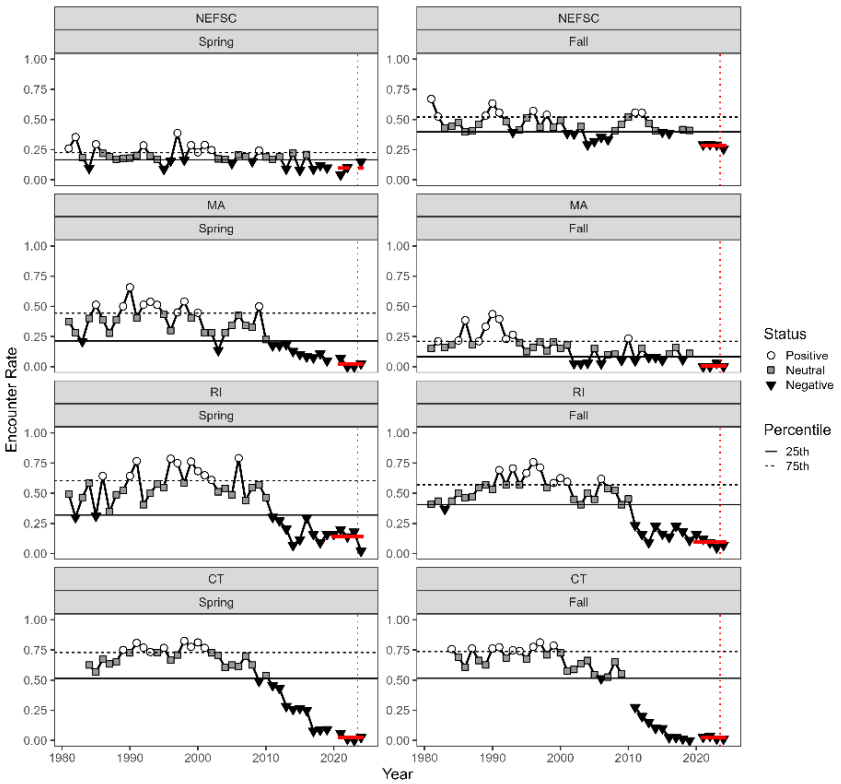
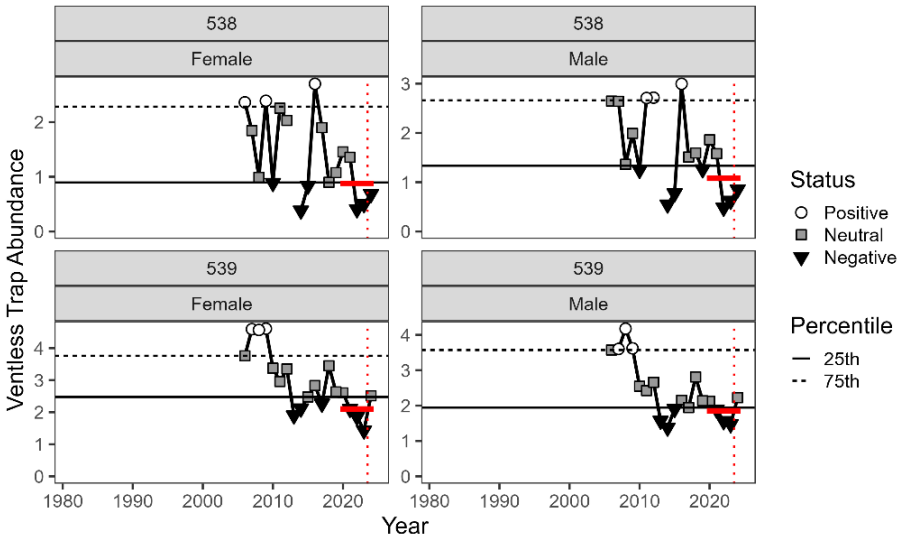


Table 10. SNE abundance indicators: ventless trap survey abundance.

VENTLESS TRAP ABUNDANCE Abundance of lobsters ≥ 53 mm CL				
Survey	*538*		*539*	
	Female	*Male*	*Female*	*Male*
1981				
1982				
1983				
1984				
1985				
1986				
1987				
1988				
1989				
1990				
1991				
1992				
1993				
1994				
1995				
1996				
1997				
1998				
1999				
2000				
2001				
2002				
2003				
2004				
2005				
2006	2.36	2.64	3.76	3.57
2007	1.84	2.64	4.59	3.60
2008	0.99	1.36	4.57	4.18
2009	2.39	1.99	4.61	3.62
2010	0.89	1.25	3.37	2.55
2011	2.25	2.71	2.96	2.43
2012	2.03	2.71	3.35	2.66
2013			1.90	1.57
2014	0.38	0.55	2.12	1.38
2015	0.84	0.77	2.48	1.91
2016	2.70	3.00	2.83	2.15
2017	1.90	1.51	2.27	1.94
2018	0.90	1.59	3.45	2.81
2019	1.08	1.26	2.63	2.14
2020	1.46	1.86	2.60	2.13
2021	1.36	1.58	2.11	1.89
2022	0.41	0.48	1.86	1.56
2023	0.50	0.62	1.43	1.47
2019-2023 mean	0.96	1.16	2.13	1.84
2024	0.68	0.85	2.51	2.23
2020-2024 mean	0.88	1.08	2.10	1.86

25th	0.90	1.33	2.48	1.94
median	1.87	1.79	3.35	2.55
75th	2.28	2.66	3.76	3.57

Figure 11. SNE abundance indicators: ventless trap survey abundance.



Appendix: Data Update Data Changes

Ventless Trap Survey (Update through 2024)

Strata areas used to calculate ventless trap survey abundance indicators from the stratified random survey design as well as to weight observations in the model-based index used in the GOM combined recruit index changed marginally since the previous Data Update. This change was due to the transition from the retired *rgdal* R package to the modern replacement *sf* R package to calculate strata areas from shapefiles with strata spatial polygons. The transition resulted in similar trends over time within each time series, and less than 2% change from index values in the previous Data Update for areas with no data changes (see Rhode Island data changes below).

Northeast Fisheries Science Center (Update through 2024)

Updated indicators presented here for the NEFSC trawl survey are based on changes to the treatment of survey data developed during the 2025 stock assessment. This includes the removal of many survey strata in SNE that rarely captured lobster over the entire time series, removal of one strata in GBK that is no longer surveyed by the new survey vessel, and the use of gap-filling techniques to address cases where individual strata were unsampled in an otherwise mostly complete survey. Details of these changes are included in the 2025 stock assessment.

Additionally, as a general caveat, we recognize that the vessel change in 2009 for the federal trawl survey creates a bias in the trawl survey encounter rates across all regions. The NEFSC calibration study indicated that the new trawl vessel and gear catch more lobsters than previously. By extension, it is also more probable for lobsters to be present in a trawl than previously. While a calibration is applied to the recruit abundance to account for this, a similar calibration for encounter rates has not been developed. Thus, we expect encounter rates for the federal trawl survey are biased high, relative to the earlier time period, starting in 2009.

Rhode Island (Update through 2024)

The 2023 settlement survey abundance index value for Rhode Island has been modified to account for a calculation discrepancy between the state database and the coastwide data warehouse. The trajectory of the index remains the same, with recent values being the lowest in the time series. Additionally, minor QA/QC adjustments were made in the database to identify traps that should be excluded from analyses. Any index value adjustments were minor and produced no change in the indicator status throughout the time series.

Rhode Island (Update through 2023)

A slightly more conservative method for identifying traps to exclude from the VTS data set was adopted during the 2024 Data Update (terminal data year of 2023). For example, some traps with a hole in the funnel or side head were excluded whereas they were not in previous years. The table below compares the number of traps retained for index calculation between the 2024 Data Update and 2023 Data Update.

Year	2023 Data Update	2024 Data Update
2006	852	851
2007	848	848
2008	864	864
2009	804	804

2010	858	857
2011	858	858
2012	834	830
2013	839	836
2014	832	825
2015	854	846
2016	831	817
2017	833	831
2018	846	839
2019	858	850
2020	836	826
2021	864	851
2022	861	815

The only change in conditions the data change causes is for 2019 and 2020 annual values for both sexes which change from negative conditions during the 2023 Data Update to neutral conditions during the 2024 Data Update. The terminal five-year means are negative for both sexes during both Data Updates.

Maine (Update through 2022)

During the 2023 Data Update (terminal data year of 2022), a few errors were found in the upload process where data was not uploaded correctly and treated in a consistent manner as the assessment. For the Fall 2021 ME/NH Trawl Survey, the sex of sampled lobsters did not upload correctly, leading to 7 tows being excluded in error. These data have now been corrected and included. During the 2020 assessment, the stock assessment team, in consultation with survey staff, determined that a very large outlier tow in the Spring 2014 ME/NH Trawl Survey should be excluded from the assessment. However, this outlier tow was not excluded in the 2022 Data Update. It was excluded for the 2023 Data Update, consistent with the stock assessment. For the Maine settlement survey, data for 2013 was not uploaded completely and this has now been corrected.

Massachusetts (Update through 2022)

Following the 2022 Data Update (terminal year of 2021), an error was discovered in the data pull for the SNE VTS index that did not filter the frequency of trawl hauls per month in historical data to match the reduced sampling frequency in data since the footprint reduction (see below; reduced to 1 haul/month). This error was corrected in the data pull for the 2023 Data Update.

Massachusetts (Update through 2021)

Following the 2021 Data Update (terminal data year of 2020), there was a reduction in the spatial coverage of the SNE VTS (Statistical Area 538) due to reduced participation. This change necessitates dropping out data collected during earlier years from areas no longer sampled to calculate an index from a consistent survey footprint, resulting in changes to the indices. Note that the updated index increased slightly in scale (the reduced footprint excludes most of the interior of Buzzards Bay), but the pattern over time is generally consistent with the previous index.

Rhode Island (Update through 2021)

Some changes to the SNE VTS Statistical Area 539 (RI) data occurred between the 2021 Data Update (terminal data year of 2020) and 2022 Data Update (terminal data year of 2021). Upon further QA/QC in site or sample location, strata classification for select stations over time were rectified. Data as such were updated to reflect these changes during the 2022 Data Update.

Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **American Lobster Management Board**

FROM: **American Lobster Technical Committee**

DATE: **January 20, 2026**

SUBJECT: **GOM/GBK Lobster Management Strategy Evaluation Development**

Background

The 2025 American Lobster Benchmark Stock Assessment was presented to the Commission's American Lobster Management Board (Board) at the 2025 Annual Meeting. The assessment found that the terminal three-year (2021-2023) average reference abundance of the Gulf of Maine/Georges Bank stock had declined 34% from the time series highs of the previous (2020) assessment. Abundance fell below the Fishery/Industry target, indicating potential for degradation of economic conditions of the lobster industry, but remained above biological reference points indicating the stock is not depleted. Exploitation just exceeded the exploitation threshold, indicating that overfishing was occurring. Abundance status is the primary metric for management advice. Exploitation status (and its interpretation) is less certain and is provided as an extra safeguard against sudden increases in exploitation that may not be explained by decreasing reference abundance.

Given these results, the assessment did not recommend immediate management action in terms of regulatory changes but strongly recommended that the Board immediately initiate a Management Strategy Evaluation (MSE) for the GOMGBK stock. The goals of the MSE process would be to clearly identify management objectives (across all stakeholders), to better understand socioeconomic status and concerns, and to identify potential management tools that will have buy-in from industry and prevent further declines towards biological thresholds. This recommendation is similar to a recommendation from the 2020 stock assessment but is emphasized here given the changing trends in abundance observed during the current assessment.

In response to the assessment findings and recommendations, the Board tasked the Lobster Technical Committee (TC) at the Annual Meeting to refresh guidance on initiating a MSE for American lobster at the Commission's 2026 Winter Meeting. This guidance was requested to assist the Board in considering how MSE could be of use for lobster fisheries management. The TC met via webinar two times following the Annual Meeting to develop the following guidance.

MSE Guidance

As first steps toward the development of a GOMGBK lobster MSE, the TC provides two recommendations consistent with those provided to the Board in 2021 following the 2020 stock

assessment[1]. First, the TC recommends forming a steering committee for scoping and coordinating all parts of an MSE process, including the process to elicit management objectives from a variety of stakeholders as a first step. The TC recognizes the highly interdisciplinary nature of MSE and the need for additional expertise outside of the TC to successfully guide a lobster MSE. The TC recommends that representation on the steering committee include Board members, TC members, Commission staff, members of the Commission's Committee on Economics and Social Sciences, industry stakeholders (preferably those with experience participating in the fisheries management process), and members of the Commission's Assessment and Science Committee or Management and Science Committee with past experience in MSE. To be effective, the number of people in the steering committee should be limited to approximately a dozen members. A steering committee could be populated through a call for nominations and approved via Board action.

Second, the TC recommends initiation of a formal process to develop management goals and objectives for the future of the GOMGBK lobster fisheries. The steering committee would be responsible for the design and development of this process, but the TC believes a successful process would include a series of meetings, including meetings at local scales (e.g., state management zones and/or LCMAs) and at a regional stock wide scale. The spatial scale, number, and sequence of meetings would be developed by the steering committee. Management objectives developed through such a process would be used to develop an MSE, with consideration of what is feasible with available data and modeling capabilities. Until management objectives are clearly established for the future of the fishery, the TC believes further details of a MSE, including timelines and costs, will be uncertain.

The TC emphasizes that such a management objectives process is a necessary precursor to initiating an MSE but does not commit the Board to pursuing an MSE. Outcomes of such a management objective process will be beneficial no matter the direction the Board ultimately takes on MSE for lobster. The costs incurred for this process will include funding for a professional facilitator or team of facilitators and meeting costs. The TC believes contracting a professional third-party facilitator to lead stakeholder meetings will be critical to ensure discussions are respectful and productive and that the outcomes of the meetings have higher potential to be useful to future management. The cost of hiring a facilitator will depend on their role, which could range from only facilitation of regional meetings to participation in the development and planning of the process (with guidance from the steering committee) in addition to facilitation of regional and local meetings. Based on similar processes that have recently been undertaken by the Commission and other agencies, the TC estimates facilitation costs for the proposed management objectives process would fall in the range of $40,000 (facilitation only) to $100,000 (process development and facilitation of all workshops).

[1] Technical Committee Memo: LobsterTCReport_ManagementStrategyEvaluation_April2021.pdf

Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • asmfc.org

MEMORANDUM

TO: **American Lobster Management Board**

FROM: **American Lobster Advisory Panel**

DATE: **January 20, 2025**

SUBJECT: **Advisory Panel Input on 2025 Benchmark Stock Assessment**

The American Lobster Advisory Panel (AP) met via webinar on January 12, 2026 to review the 2025 Benchmark Stock Assessment and Peer Review Report and provide input to the Management Board on the assessment findings and state of the fishery. Tracy Pugh, Technical Committee Chair, summarized the 2025 Benchmark Stock Assessment and Peer Review Report for the AP.

Advisory Panel Attendance: Lanny Dellinger (RI), Joe Fiorentino (NJ), Sonny Gwin (MD), Eric Lorentzen (MA), Grant Moore (MA), Jeff Putnam (ME), Sooky Sawyer (MA), John Whittaker (CT)

Staff: Caitlin Starks, Jeff Kipp, Tracy Pugh (TC Chair)

Other Attendees: Renee Zobel, David Borden, Raymond Kane, Josh Carloni, Nick Hagler, Heidi Henninger, Kevin Guiney, Frank Macalik

The American Lobster Advisory Panel (AP) met via webinar on January 12, 2026 to review the 2025 Benchmark Stock Assessment and Peer Review Report and provide input to the Management Board on the assessment findings and state of the fishery. Tracy Pugh, Technical Committee Chair, summarized the 2025 Benchmark Stock Assessment and Peer Review Report for the AP.

The AP discussed and asked questions about the assessment results, data, and methods. The comments provided by the AP are summarized below. These do not reflect consensus agreements, but rather individual perspectives.

Lanny Dellinger (NY) commented that he sees some issues with the assessment with regard to the Southern New England (SNE) stock. He noted that predator species (e.g., scup, black sea bass) are well above their management targets in the region and the large numbers of predators are doing damage to the lobster stock. He stated that there are no federal estimates for striped bass in the offshore area, and it seems like there are high numbers. He also noted that there have been significant losses of habitat for lobster production in major estuaries due to nitrogen reduction, and the decline of kelp and rockweed has lowered lobster productivity. Policies for habitat management and predator fishery management are in conflict with a healthy lobster resource. For these reasons it does not make sense to restrict the lobster fishery in SNE. Tracy Pugh noted that the assessment team tried to account for predation through using different natural mortality rates in the assessment model. Lanny Dellinger noted it could be useful for the Habitat Committee to consider these issues.

Sonny Gwin (MD) commented that the lobster effort below the Delaware Bay is really only from three fishermen. Any more regulations would mean nothing is left for those fishermen. He noted that he has

been fishing off of Ocean City for over 30 years and is seeing more small lobsters now than ever. Divers down there are also seeing an abundance of lobsters.

John Whittaker (CT) stated that there is hardly any effort in Area 6. He wonders if making cuts to the fishery would make any difference because effort is so low. He also commented that he thinks fishing bait is providing food for the remaining lobsters in the area, and removing bait by cutting fisheries could negatively impact the population.

Grant Moore noted that since the assessment found that overfishing is not occurring in SNE, the recommendation to further reduce fishing mortality with additional measures for that stock would be hard for the industry to swallow. He also commented that unless enforcement improves, additional regulations will not be successful. He stated that the lobster management plan is great, and that a lot of effort could be removed if the current regulations were fully enforced.

With regard to the GOM/GBK stock, Jeff Putnam asked for clarification on the recruit-dependency indicators and why high recruit-dependency would be negative for the fishery. Tracy Pugh explained that high recruit-dependency means the fishery is vulnerable to decreases in settlement; if settlement and recruitment decline, landings, which are dependent on recruits, will be depressed.

Jeff Putnam also noted that it is important to recognize regional differences within the stocks when thinking about management. He said some areas are quite stable and the future looks healthy, whereas other areas seem to have issues. In contrast to the southern areas of Maine, the areas where he fishes are seeing fewer predators and colder water temperatures, which are encouraging. So it needs to be considered how regulations may have different effects in different areas. In Maine they have also lost fishermen through the entry/exit ratios with much fewer licenses than there used to be, and trips may be down as well.

Eric Lorentzen commented that consideration of regulations should be tabled until the new right whale rules come out in a few years to see how those interact with conservation efforts for the lobster stock. If there are more closed areas to the lobster fishery for the whales that will serve as lobster conservation too.

Grant Moore concluded the meeting by stating that he is looking to step down as Chair, and asked the advisors present to consider taking on the role.

Atlantic States Marine Fisheries Commission

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703.842.0740 • asmfc.org

MEMORANDUM

January 13, 2026

To: **American Lobster Management Board**

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

RE: **Advisory Panel Nomination**

Please find attached a new nomination to the American Lobster Advisory Panel – Joe Fiorentino, a recreational diver from Pennsylvania. He replaces Jack Fullmer on the Panel. While Mr. Fiorentino resides in Pennsylvania, New Jersey supports his nomination as a New Jersey representative. Please review this nomination for action at the next Board meeting.

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

Enc.

cc: Caitlin Starks

American Lobster Advisory Panel

Maine (4)

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

Christopher Welch
339 Alfred Road
Kennebunk, ME 04043
Phone: 207.205.2093
littleskeet@ymail.com
Appt. Confirmed: 8/2/22

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

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

New Hampshire (2)

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

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

Massachusetts (4)

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

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

Todd Alger (recreational diver)
7 Holly Street
Hingham, MA 02043
Phone: 339.236.0736
Todd.alger@gmail.com
Appt. Confirmed: 8/2/22

Eric Lorentzen (comm/inshore/offshore pot)
173 Spring Street
Hull, MA 02045
Phone: 774.217.0501
ericreedlorentzen@gmail.com
Appt. Confirmed: 8/2/22

American Lobster Advisory Panel

Rhode Island (2)
Lanny Dellinger (comm./pot)
160 Snuffmill Road
Saunderstown, RI 02874
Phone (day): (401)932-5826
Phone (eve): (401)294-7352
lad0626@aol.com
Appt Confirmed 2/21/06
Appt Reconfirmed 5/10

Vacancy (comm/offshore pot)

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

Vacancy (comm pot)

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

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

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

Joe Fiorentino (rec diver)
40 Beechwood Ct
Bangor, PA 18013
Phone: 610.704.2687
joefdive@gmail.com

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

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

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

Form submitted by: Joseph Fiorentino (your name) State: New Jersey

Name of Nominee: Joseph Fiorentino

Address: 40 Beechwood Ct

City, State, Zip: Bangor, Pennsylvania 18013

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

Phone (day): (610) 704-2687 Phone (evening): _____

FAX: _____ Email: joefdive@gmail.com

. . . . . .

FOR ALL NOMINEES:

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

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

   yes _____ no X

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

   yes X no _____

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

Vice-Chairman for NJ Council of Divers and Clubs, Neptune, NJ

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

Lobster
Sea Bass
Striped Bass
Blackfish
Flounder (Fluke)

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

Same as above

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? NA years
2. Is the nominee employed only in commercial fishing? yes_____ no_____
3. What is the predominant gear type used by the nominee?_____
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)?_____

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? NA years
2. Is the nominee employed only in the charter/headboat industry? yes _____ no_____

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

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

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

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? 45 years

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

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS:

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

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

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

See Attached

See Attached

See Attached

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

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

_____

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? 45 years

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

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

See attachment

See Attached

_____

FOR ALL NOMINEES:

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

See attachment

Nominee Signature: _____ Date: 12/22/2025

Name: Joseph Fiorentino
(please print)

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

_____ State Director

_____ State Legislator

_____ Governor's Appointee

Joe Fiorentino

I am an active New Jersey SCUBA diver since 1978, with extensive experience in spearfishing and legally hand-harvesting lobster. Through decades of diving, I have gained a unique, first hand perspective on lobster habitat, behavior, and broader underwater environmental conditions that are not visible from the surface. Regular in-water observation allows me to notice changes in habitat, population presence, and ecosystem health over time. I believe this direct long-term underwater experience would be a valuable complement to the scientific and fishery perspectives represented on the Lobster and Jonah Crab Advisory Panel.

I have a bachelor degree in Environmental Studies. My career has been working in the field hazardous waste management and environmental consulting, from which I recently retired.

This is my YouTube Channel link. To date I have created 41 short videos documenting recent SCUBA diving trips to New Jersey shipwrecks.

https://www.youtube.com/@joefiorentino4551

NEW JERSEY MARINE FISHERIES COUNCIL
501 EAST STATE STREET, 3RD FLOOR
P.O. BOX 420 Mail Code 501-03
TRENTON, NJ 08625-0420
609-292-7794
609-984-1408 FAX

July 23, 2025

Joseph Fiorentino
40 Beechwood Court
Bangor, PA 18013

Dear Joseph Fiorentino,

In July 2025, the New Jersey Marine Fisheries Council (MFC) reviewed and accepted your application to become an advisor or to renew your membership to the Council committee(s) specified below.

- Lobster/Jonah Crab

You stated authorization to represent the following organization(s) for the above committees:

- NJ Council of Divers

Advisors are appointed for a three-year term, so your term as an advisor will expire on July 31, 2028. There is no limit on the number of terms an individual may serve; however, there is no automatic reappointment. Following a three-year term, advisors must submit another application in order to be considered for reappointment to each committee. Please note that membership cannot be renewed until the term is approaching expiration. Any applications submitted for non-expiring terms were not reviewed and must be submitted near the time of expiration.

As described in the Marine Fisheries Council Administrative Guidelines, advisors are expected to contact constituents from their region/organization/fishery before an advisory meeting so that they can provide input from the community they represent, rather than their own personal viewpoint. In addition, the Council recently approved new guidelines for advisors which state that:

> *Committee advisors are expected to uphold the mission and responsibilities of the Council. Any advisor who is issued a marine fisheries violation will be given a warning. A second violation will result in the advisor being removed from their advisory position*

for all committees, and they will be ineligible to serve as an advisor for any committee for three years from the date of the violation. New applicants who have received a violation in the last three years will be ineligible to serve as an advisor for any committee until three years from the date of the violation.

Please visit the NJDEP Fish and Wildlife website for the following additional information:

MFC Administrative Guidelines
https://dep.nj.gov/wp-content/uploads/njfw/mfc_guidelines.pdf

MFC Committee Advisor Membership
https://dep.nj.gov/wp-content/uploads/njfw/mfc-advisory-committees.pdf

Thank you for your interest in serving as a committee advisor and I look forward to working together. Please do not hesitate to contact Bureau of Marine Fisheries staff, via email (marinefisheriescouncil@dep.nj.gov) or phone (609-748-2020), with any questions.

Sincerely,

Patick F. Donnelly, DMD
Acting Chairman