Atlantic States Marine Fisheries Commission

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American Lobster Technical Committee
Meeting Summary
Webinar
Monday, April 12, 2021

TC Members: Kathleen Reardon (Chair, ME), Josh Carloni (NH), Tracy Pugh (MA), Conor McManus (RI), Renée St. Amand (CT), Kim McKown (NY), Chad Power (NJ), Craig Weedon (MD), Somers Smott (VA), Burton Shank (NEFSC), Caitlin Starks (ASMFC), Jeff Kipp (ASMFC)

Additional Attendees: Allison Murphy (NOAA), Corinne Truesdale (RI), Megan Ware (ME), Amalia Harrington (SeaGrant)

The Technical Committee (TC) met on Monday, April 12th, 2021 to follow up on discussion from their March 25th meeting. The TC reviewed relevant data and provided guidance to the Plan Development Team (PDT) on developing a trigger mechanism to automatically implement management measures to increase biological resiliency in the Gulf of Maine/Georges Bank lobster stock (GOM/GBK) through Draft Addendum XXVII. Staff reviewed the PDT's proposed option structure, which includes three options for "packaged" measures that would be implemented at different trigger levels; as proposed the options would not be mutually exclusive, and the Board could choose to implement some or all of the options. The PDT discussed having one option include a more conservative (more proactive) trigger that would result in the implementation of standardized measures across LCMAs to provide a relatively small increase in stock resiliency, and another trigger set at a less conservative (less proactive) point that would result in the implementation of more restrictive measures to provide a more substantial increase in resiliency. Tracy commented that without a PDT representative from MA involved in drafting the current options, additional input on the options is needed but that proposed sub-option 4B (standardizing the LCMAs to a zero tolerance definition for V-notching) would likely not be a preferred measure for MA due to concerns regarding enforcement of zero-tolerance (MA would likely support a 1/8" standardized definition).

Questions for the Board
Throughout the discussion, the TC noted at multiple points that they were unable to make recommendations without additional guidance from the Board on a number of issues related to the draft addendum. Therefore, the TC developed a list of questions for the Board to consider, below. Feedback on these questions is requested to give the TC and PDT a sense of the Board's objectives and priorities with this action.

- What are the Board's objectives with regard to stock resiliency? For example, is the goal to maintain current levels of abundance and productivity, broaden stock size structure, etc.?
- How soon does the Board want to react to changes in the stock? For example, after seeing 3 years of decline of a certain magnitude, or less?
- What are the Board's priorities with regard to standardization of measures versus stock resiliency? Is one more important than the other?

- What are the Board's goals for standardizing measures throughout the GOM/GBK stock? For example, increasing biological resiliency, improving enforcement, facilitating stock assessment, addressing supply-chain issues, etc.?

Review of Data for Trigger Indices

The TC reviewed data that could be used to establish an index with an associated trigger. First Jeff presented the ME/NH and MA trawl survey data combined into single indices by season using survey provided stratum areas, with sexes aggregated and constrained to sizes 71-80 mm. Data adjustments based on swept area and size selectivity were applied to standardize the catch rates between the two surveys. With these adjustments the indices track trends of the individual trawl surveys closely, but the ME/NH survey drives the combined index because of the higher densities it encounters and the larger spatial scale it surveys.

Conor presented the female VTS index for the GOM/GBK stock, with calculated slopes of a linear regression line fit to the index for various time windows. He noted that if slope were used as a trigger it would be sensitive to the number of years used; the slope changes significantly when a 5 year window is updated on a rolling basis.

Jeff brought up the idea raised on the previous TC call of focusing on a rate of change in the indices rather than a particular level. He presented analysis of the rate of change in the combined ME/NH and MA indices. The annual rate of change was calculated by dividing the index from a given year by the previous year and subtracting 1. He also calculated a 3-year running median of the annual rate of change to smooth out noise in the annual index. The median was used rather than the mean because using the mean tends to mask a declining trend. He also calculated the annual and running 3-year median rates of change for SNE recruit indices as a case study for assessing rate trajectories and magnitudes in a precipitous decline scenario. For the ME/NH and MA indices there is more noise in the earlier part of the time series and both positive and negative trends, but more negative trends in the latter half of the time series. For SNE, after 1998 the rates of change are mostly negative across all indices. The TC discussed that if rate of decline observed in SNE were used as the basis for establishing a trigger for GOM/GBK, then they would have to select an appropriate reference period. However, they noted this could be a challenge given that right before the SNE decline they observed the highest recruitment and reference abundance levels in the time series. The TC discussed not only using a number of consecutive years of decline as a trigger, but also considering the magnitude of the decline. In SNE, the rates of change are much more negative than the negative rates observed in the last part of the GOM/GBK time series. Kim suggested that a trigger could either be based on a steep decline over a shorter number of years, or a shallower decline over a longer timeframe.

Kim also reviewed correlation analyses from the stock assessment between the survey indices and the model abundance; the indices track the assessment model abundance estimates fairly well, with less correlation for the MA index than the others. These analyses confirmed there is a relationship between the assessment model and indices, and indices could be used for potential trigger management outside of an assessment.

The TC discussed accounting for catchability effects in the annual combined index, but determined that a significant amount of work would be required to do that annually. Thus, the TC notes there is annual variation associated with the rate of change method that should be considered but that the method of using a three-year median should smooth the potential extremes.

The TC supported pursuing rate of change in the indices as the basis for a trigger, and specifically agreed that both magnitude of change and number of years of decline should be incorporated (e.g., average 10% decline over 3 years). The TC discussed basing a more proactive trigger level on the Fishery/Industry Target reference point in the assessment. However, they felt additional guidance from the Board is needed on how reactive they want to be to negative trends. The TC felt that if this type of trigger is established through the addendum, it could provide the Board a tool to respond to a decline sooner than an assessment would allow. The TC discussed that the timeframe used for a trigger based on rate of change should be shorter than an assessment timeframe, such as 3 years or less. The TC also discussed that a less proactive trigger level could be linked to the abundance limit reference point in the assessment and/or a proxy developed from the indicators that delays action to a lower abundance level.

Analysis of Minimum and Maximum Gauge Size Changes

Burton presented analyses that were done in 2018 using data from the 2015 assessment for minimum and maximum gauge combinations and their impacts to spawning stock biomass and catch. It was noted that with minimum size increases, the number of lobsters caught would decrease marginally but total weight of landings would probably increase, independent of increases in spawning stock abundance and egg production. The TC notes that analysis of the impacts of changing measures depends on the assumed biological parameters, which are probably underestimating male growth and overestimating female growth. Burton also noted that there is more uncertainty about the impact of measures as the magnitude of change from status quo increases. Also, the TC observed that any increases in minimum size incur short-term costs as a portion of the next year's catch is unavailable due to the gauge increase. In general, there is a rough relationship between changing the minimum size and landings, where increasing the minimum size by 1 mm in one year would result in a decrease in landings by roughly 10% for that year. In inches, the impact of a change of 1/32" is about 8%, and 1/16" is about 16%. Thus, changes in gauge size have short-term costs to landings, but immediate benefits to stock resiliency and long-term benefits to landings, so timing of management actions is important.

The TC also noted a need for Board guidance on their objectives for the addendum, with regard to the importance of standardization of measures versus increasing stock resiliency. If the resiliency is the priority, it should be noted that some changes being considered in an effort to standardize measures (such as decreasing the minimum size in Area 3) could actually result in some loss to stock resiliency.

Kathleen asked if these simulations could be updated with more recent discard data for Area 3, particularly inclusion of new Commercial Fisheries Research Foundation study fleet data and possibly additional data from increased NOAA observer coverage driven by Standardized Bycatch Reduction Monitoring. Burton will look into the code to determine how long updating the analysis will take. The TC agreed this updated analysis should be sufficient for the PDT to consider appropriate minimum and maximum gauge sizes for the draft addendum.