Atlantic States Marine Fisheries Commission

American Lobster Benchmark Stock Assessment and Peer Review Report

Accepted for Management Use
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Vision: Sustainably Managing Atlantic Coastal Fisheries

Executive Summary

The Review Panel met in Woods Hole, MA, from June 8-11, 2015. Prior to the review workshop, Panel members read the stock assessment report and other relevant documents provided by the American Lobster (*Homarus americanus*) Stock Assessment Subcommittee (SASC). This report reviews the components of the stock assessment. Data collection, standardization of indices, trend analyses, and stock assessment models were undertaken by the SASC, and uncertainties quantified. **The Panel commends the SASC on the comprehensive approach taken and points out places for improvement in the sections that follow.**

The Review Panel concurs with the SASC conclusions, that the Southern New England (SNE) stock is severely depleted and in need of protection, while the Gulf of Maine (GOM) and Georges Bank (GB) stocks show record abundance. The Panel also agrees that there is evidence for significant migration between the Gulf of Maine and Georges Bank and these two biological stocks should be combined in model runs.

The Panel agrees with the SASC that the University of Maine statistical catch-at-length model and the suite of data-driven stock indicators are appropriate tools for accurately characterizing the status of lobster stocks and fisheries.

Model results of the UMM model show that the combined Gulf of Maine-George's Bank (GOM/GBK) stock is neither overfished nor undergoing overfishing. The recommended model runs of the UMM model result in increasing reference abundance levels in the GOM/GBK and decreasing effective exploitation until the mid-1990s then stabilizing with higher exploitation on males.

Reference abundance in the SNE stock increased from the early 1980s, peaked during the late 1990s, then declined steeply through the early 2000s to a record low level in 2013. Closer scrutiny reveals the inshore portion of the SNE stock has clearly collapsed. The SNE stock is clearly overfished according to both the model and the stock indicators. Fishing mortality does not appear to be extremely high and this supports the conclusion that biological factors have contributed to bringing the stock to this point. It is believed the offshore area of SNE depends on nearshore settlement as the source of recruits. Therefore, the offshore is also in jeopardy and the Technical Committee and Review Panel believe the stock has little chance of recovering unless fishing effort is curtailed. To be specific, according to the reference point defined by the time series of model outputs, the exploitation rate for the entire SNE stock does not lie in the overfishing zone; however, the definition was created without considering the possibility that the stock could be at the lowest abundance level ever and the production of recruits in the inshore area (on which the offshore area depends) could be brought to an extremely low level. It is noted that pre-recruits are not measured in the offshore surveys, so the effects of recruitment failure in the inshore would not be seen in the offshore until years later when the lobsters become available to the fishery and surveys. Hence, by any reasonable standard, it is necessary to protect the offshore component of the stock until increased recruitment can be observed.

Thus, although the UMM model indicates the Southern New England (SNE) stock is not undergoing overfishing, the SASC and Review Panel believe this is an extremely misleading result. Current methods for defining the overfishing level of fishing mortality are not designed for this kind of situation.

For SNE, the Panel recommends close monitoring of the stock to try to save it. Stock indicators should be updated annually and reported to the Management Board for appropriate action. For GOM/GBK, given the good condition of the stock, a five-year interval may be appropriate for a benchmark assessment. However, the stock indicators should be updated more frequently to detect signs of changing recruitment or other conditions.