

Atlantic States Marine Fisheries Commission

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MEMORANDUM

July 23, 2009

To: American Lobster Management Board

From: American Lobster Technical Committee

RE: Recommendations for rebuilding

At the May Board meeting the Technical Committee (TC) was tasked to provide the Board guidance on responding to the results of the 2009 lobster stock assessment. The TC suggests the Board adopt the reference points recommended in the stock assessment document rather than those recommended by the peer reviewers because they are more risk averse and reflect conditions experienced by the fishery in the last 25 years. The Southern New England (SNE) stock, currently at historic (1982-2007) low abundance and experiencing relatively low exploitation, will need a rebuilding strategy to attempt to regain its former recruitment productivity. Setting a reference threshold abundance below the current level and exploitation above it, as suggested by the Peer Review, will make these goals almost impossible to accomplish. For the Gulf of Maine stock (GOM), the Assessment reference points increase the probability of maintaining the current high abundance and steady exploitation rate that population has experienced for the last 15-20 years. The Georges Bank (GBK) stock condition is similar, with similar goals of maintaining this fishery as small and productive.

Regardless of the reference points chosen by the board there is an immediate need to address rebuilding in the entire SNE stock area and in portions of the GOM. The following recommendations are based on rebuilding the lobster stock to the assessment document reference points.

Overfishing is not occurring in any of the three lobster stocks. The SNE stock is the only one that is depleted. Current abundance of the SNE stock is the lowest observed since the 1980s and exploitation rates and effort have declined since 2000. Recruitment has remained low in SNE since 1998. Given current low levels of spawning stock biomass and poor recruitment further restrictions are warranted.

In the GOM stock, the assessment showed that Area 514 (the southern most portion of the GOM stock) has continued to experience very high exploitation rates and declines in recruitment and abundance since the last assessment. The TC recommends further restrictions here given the persistence of low recruitment and its negative effect on total abundance and egg production

Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015.

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potential (Xue et al. 2008) . Across GOM, effort levels in recent years are the highest observed since 1982 (both in number of traps and soak time) and further increases in effort are not advisable.

As highlighted in the Advisory Report, the TC recommends that data collection be improved; specifically, increase the percent of harvester trip reports and initiate recreational data collection, standards, and requirements as part of state compliance within the Fishery Management Plan (FMP).

For all three lobster stocks it is important to scale the fishery to match the current abundance and environmental conditions. The recommended management actions have the maximum likelihood of rebuilding depleted stocks even if the environment becomes less favorable. Some of the reasons for decline in abundance are external to the fishery (Balcom and Howell, 2006 and Glenn and Pugh, 2006), however reducing harvest removals of mature adults has the highest likelihood of restoring abundance. The goal is to rebuild and maintain all three stocks at or above historic (1982/4 – 2003) median abundance with a healthy stock structure able to sustain itself within the constraints of the existing environment.

Recommendation for Southern New England (Applicable to LMA's 2, 3, 4, 5, and 6)

Changes to existing management strategies are required in order to rebuild the SNE lobster stock by 2022, as required by the FMP. The magnitude of changes that are necessary to potentially see sustained improvements in stock abundance are significant. Using Assessment modeling results and abundance reference point, the SNE stock abundance 'deficit' is 10.7 million adult lobsters, requiring an increase equivalent to 73% of the current stock size of 14.7 million. In order to see an abundance increase of this magnitude, landings should be reduced by at least 50% from the average of the last 3 years.

The TC recommends output controls as the best method to rebuild the SNE stock.

Alternatively, input controls can accomplish rebuilding, but only if latent effort (traps and permits/licenses) are minimized or removed – and actively fished traps are reduced to a level where effort and catch are linear. Input controls are less certain in obtaining catch reductions that may lead to stock rebuilding, an additional measure is needed to work in concert with effort reduction. Several alternatives were discussed by the TC members. Some members support using a substantial (as listed below) seasonal closure while a minority supports a narrow slot limit. Those that do not support the slot are concerned that such a measure could increase discard mortality and will substantially increase the inefficiency of the fishery. Both of these concerns stem from the substantial increase in the discard rate that would result from having a very narrow slot limit. Those that do not support the season closure are concerned about the potential loss of market and the probability of some recoupment by the fishery; possible larger catches in the open season could negate an unknown portion of the gains in protection during the closed season and make the fishery economically less stable. The TC believes the recommended input and output controls may have substantial socio-economic and law enforcement effects, and suggests that the Socio-Economic and law enforcement Committees investigate effects of these controls to provide guidance to the Board.

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The controls listed below should apply universally to all gear types, both commercial and recreational.

Output Controls:

1. Harvest Moratorium: this measure will eliminate fishing mortality directly and facilitate the fastest rebuilding.
 - a. There are concerns that the inshore fishing effort may be displaced into federal waters. Biological and economic problems may occur.
2. Quota/landings reduction (e.g. TACs, ITQs): Quota can directly control total harvest and fishing effort. Quota can promote efficiency within the fishery without the need of direct effort controls. A quota would be the most effective way to reduce harvest of lobster in the Southern New England stock.
 - a. There are concerns that under-reporting, no reporting, or mis-reporting will occur under a quota management system due to the large number of points of sale.
 - b. Quotas should be designed to minimize discard mortality.

Input controls:

If choosing these measures, the Board will need to implement severe adjustments to current input controls. Minor input controls as adopted in previous years, such as small changes in gauge size or minimal changes in trap numbers, will not be effective in rebuilding the stock. All input controls must be supported by a concurrent reduction in effective effort.

1. Effort reduction
 - a. Minimizing/removal of latent effort
 - b. Trap reduction
 - i. Initially 50% of current reported trap usage.
 - c. License reduction
2. Closed Seasons
 - a. Summer closure (at minimum June – October) would substantially reduce harvest, while maximizing the reproductive potential of the stock, by allowing lobsters to molt, mate and extrude eggs without being disturbed by the fishery. This seasonal closure would also help minimize discard mortality related to molting and high summer water temperatures. Instituting gear removal during the closed season would facilitate compliance, eliminate incidental mortality of lobster and other species, and allow for easier collection of abandoned gear.
 - b. A closed season could have a positive effect on protected species (marine mammals, sea turtles) efforts by greatly reducing gear entanglements.
 - c. Close seasons generally encourage harvest immediately after opening and likely need to be enacted in conjunction with significant effort reductions.

- d. Reduction of gear conflicts among other commercial and recreational activities.
3. Slot limit: biologically could increase the size and productivity of the population. By not harvesting the largest lobster, this measure has the potential to increase abundance at the fastest rate if the existing maximum size is substantially reduced. Larger multiparous animals can provide periodic waves of larval recruitment which have been shown to have a higher survival rate than larvae produced by first-spawners. This production can better compensate for low adult stock size and reduced juvenile survival. The historic record of larval production in Long Island Sound shows spikes of production every 3-5 years during the two decades prior to the 1999 die-off, with an absence of any strong production from 2000 -2008. Retaining larger animals in the population may restore the historic pattern. In SNE the maximum size would have to be reduced from 5 ¼” (133mm) CL to within one molt-size of the minimum size of 3 3/8” (86mm) CL (e.g. 3 ¾” (95mm) CL) to be immediately effective.
 - a. There is concern that the discard mortality may be unacceptably high.
 - b. There is also great concern that there would be a substantial decrease in the efficiency of the SNE fishery, whereby the fleet would have to expend substantial effort (trap hauls) and resources (bait and fuel) to catch substantially fewer lobsters.
 4. Closed Areas
 - a. Could be effective if large concentrations of spawning adults were protected from fishing and incidental mortality.
 - b. Must be large enough to minimize migration out of closed area

Recommendation for GOM/Area 514 Stock

The TC is concerned with a ~15 year decline in abundance to time series low, a loss of local spawning stock biomass, and decreasing catch rates coupled with increasing soak times. The TC recommends attempting to rebuild productivity in this area by increasing the gauge to 3 3/8 inches (86mm) and reducing the effort by 50% by removal of half of all active traps in Stat Area 514. Anyone fishing in 514 should abide by these regulations. Not only will this improve stock health, it will also promote economic efficiency in the fishery. These actions address the harvest of immature females in 514 (12% of females are mature at the current minimum length of 82.6mm or 3 ¼”) which may be undermining stock production.

GBK

TC warns against any increases in effort or shifts in effort from other stock areas.

Citations

Balcom, N. and P. Howell, 2006. Responding to a resource disaster: American lobsters in Long Island Sound, Sea Grant Project Final Report CTSG-06-02, 22p.

Glenn, R. and T. Pugh, 2006. Epizootic shell disease in American lobster (*Homarus americanus*) in Massachusetts coastal waters: interactions of temperature, maturity, and intermolt duration. *J Crustacean Biol* 26(4):639-645.

Xue, H., L. Incze, D. Xu, N. Wolff, and N. Pettigrew. 2008. Connectivity of lobster populations in the coastal Gulf of Maine. Part I: Circulation and larval transport potential. *Ecological Modelling* **210**:193-211.