August 20, 2014

Dr. William Karp, Science and Research Director
Northeast Fisheries Science Center
NOAA Fisheries Northeast Region
166 Water Street
Woods Hole, MA 02543

Terry Stockwell, Chair
New England Fishery Management Council
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Newburyport, MA 01950

Dr. Jacob Kritzer, Chair
Scientific and Statistical Committee
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Dear Dr. Karp, Mr. Stockwell, and Dr. Kritzer:

We are writing to express our concern that the recent benchmark assessment conducted for Gulf of Maine (GOM) haddock did not adequately address the Term of Reference (TOR)[1] concerning mixing between the Georges Bank (GB) haddock and Gulf of Maine haddock stocks. We also wanted to notify you of our concerns relating to the treatment of the 2012 year class for GOM haddock when setting a future ABC/ACL for this stock.

One of the reasons why the NEFMC and NRCC prioritized the GOM haddock assessment for 2014 was due to the great disparity between the ABCs for the GB haddock and GOM haddock stocks. In fishing year 2013, the ABC for the Georges Bank haddock stock was approximately 29,335 mt or 100 times greater than the ABC for the Gulf of Maine haddock stock. Concern was expressed by many NEFMC members that the large biomass and newly reported year classes of the GB haddock being recruited into that stock would spill over into the Gulf of Maine, which would prompt a shutdown of fishing in the Gulf of Maine due to the very low ABC prescribed for the GOM haddock stock.

On April 23, 2013 the NEFMC passed a motion to "task the PDT and SSC to examine the issue of GB haddock spillover into the GOM stock area, provide an estimate of the amount of spillover when large year classes of GB haddock occur, and provide suggestions as to how the anticipated spill-over of the strong 2010 year class can be used to adjust the GOM haddock ABC for FY 2013, 2014 and 2015."

After reviewing available data and literature on this topic, the PDT and SSC concluded in their reports to the NEFMC that exchange rates were not well characterized. The SSC further noted in their correspondence to the NEFMC in a Memo dated September 3, 2013 that "although the literature

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[1] 3. Evaluate the hypothesis that haddock migration from Georges Bank influences dynamics of GOM stock. Consider role of potential causal factors such as density dependence and environmental conditions.

perhaps suggests an upper bound of 10% - this figure is not robust." The SSC also concluded that they could find "no scientific basis for adjusting haddock ACLs based on mixing or spillover."

Both the PDT and the SSC agreed that some mixing was likely but they didn't have enough information available to recommend a specific percentage or number. This prompted the NEFMC to prioritize a GOM haddock benchmark assessment during their subsequent discussions with the NRCC.

During the recent benchmark assessment for GOM haddock, the only material reviewed to address the mixing TOR was tagging data. Using this data Miller and Palmer concluded that "migrating rate estimates imply individuals starting in the Gulf of Maine have approximately a 94% probability of being in the Gulf of Maine for 1 year given they survived the interval. Individuals starting in Georges Bank have approximately 86% probability of being in the Georges Bank 1 year later." In summary, tagging data shows that 6% of the fish tagged in GOM migrating to GB and 14% of the fish tagged in Georges Bank migrating to the Gulf of Maine.

At the model meeting held for the assessment, Dr. Butterworth and Ms. Rademeyer conducted 3 scientific analyses on GOM haddock, using the SCAA model. The first analyses included an approach whereby the stock was treated as isolated, no mixing was estimated. The second analysis included an approach which allowed for interchanges in the form of permanent migration from (and to) the neighboring Georges Bank haddock population. The third analysis included an approach (known in the IWC Scientific Community as the sabbatical model) that allowed for interchanges which were not permanent in nature. The last analysis considered some GB haddock may visit the GOM area during a year, and perhaps be caught in the Gulf of Maine but if not suffering from mortality in some form, may return to the Georges Bank area (Butterworth and Rademeyer June 2014).

Dr. Butterworth and Ms. Rademeyer's model which addressed mixing between stocks was not selected as the final model sent to the Peer Review. The working group decided to only forward the Peer Review the assessment conducted by the NEFSC that did not include any consideration of mixing. Therefore, the only actual scientific model that explored mixing was not reviewed by the Peer Reviewers.

We hope in the days ahead the NEFMC, NEFSC and the SSC will be able to address this issue.

We also request the NEFMC and SSC look further into the application of uncertainty when estimating the strength of year classes and their impact on future recruitment estimates, as well as their impact on setting ABCs. This is in specific reference to the 2012 GOM haddock year class where there is a recommendation to down-weight the survey indices by 50%, but it also presents a broader question. Is there consistency in the treatment of the data? Does the scientific process consider uncertainty associated with extraordinarily low survey results in the same manner as it does for optimistic results? Has the process examined the impacts to a fishery when an overly pessimistic result has later proven by an updated assessment to be wrong?

Sincerely,

Maggie Raymond   Vito Giacalone
Associated Fisheries of Maine   Gloucester Fishing Community Preservation Fund

Jackie Odell
Northeast Seafood Coalition