



## New England Fishery Management Council

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**To:** Tom Nies, Executive Director  
**From:** Scientific and Statistical Committee  
**Date:** September 3, 2013

**Subject: Review of monkfish biological reference points and interim acceptable biological catch (ABC) control rule and develop updated recommendations to Council**

The SSC met on May 16, 2013 to address the following terms of reference (TORs):

- 1) Review information provided by the Monkfish Plan Development Team (PDT) in response to request from the SSC.
- 2) Specify OFLs and develop ABC recommendations for both the northern and southern management areas for fishing years 2014-2016. ABC recommendations should be provided under the current control rule and under any new control rule that the SSC might recommend.

The SSC considered the following documents in its deliberations:

1. Monkfish PDT Responses to SSC Questions (Memo to SSC, July 31, 2013)
2. SSC Report on Monkfish ABCs May 2013 (Memo from SSC to Council re biological reference points and interim ABC control rule, May 29, 2013)
3. Monkfish PDT Recommendations on OFL ABC (Memo to the SSC, April 30, 2013)
4. Monkfish Assessment Update 2013 (pre-publication copy)
5. SSC Report on Monkfish - September 2010 (Memo from the SSC to Council Ex. Dir.)

During its May 16, 2013 meeting, the SSC determined that additional analyses and alternatives were needed before ABC and OFL advice for monkfish could be provided. Specifically, the SSC requested that:

- OFL/ABC options be developed after applying adjustments for retrospective bias, per the advice of the peer review panel.
- ABC options (be) developed using alternative values of  $F_{ABC}$  such as  $75\%F_{MAX}$ ,  $F_{40\%MSP}$ , and others that the PDT would like to propose.

The first request was made due to concerns among the SSC about the inconsistency inherent in using fishing mortality values from the assessment time series that had not been adjusted for retrospective bias in combination with biomass estimates that had been adjusted, at least in the terminal year. The second request above was made in light of warnings from the PDT that retrospective adjustments of that type are beyond the scope of work typically conducted after the conclusion of an assessment process and might not be possible. The SSC was therefore looking for approaches that used fishing mortality values estimated independently of the assessment model.

The PDT attempted to address both requests from the SSC, and the SSC wishes to express its gratitude for those efforts. Ultimately, the PDT could not provide alternatives based on

retrospective-adjusted fishing mortality values due to analytical difficulties detailed in the PDT report to the SSC (document #1 above).

The SSC considered the alternatives provided by the PDT that utilized fishing mortality rates estimated independent of the assessment model (75% of the  $F_{MSY}$  proxy and  $F_{40\%MSP}$ ). However, the SSC concluded that these  $F$  estimates are too dependent upon age-based life history parameters (growth, mortality, maturation) that are too uncertain in light of difficulties with ageing monkfish.

In the report to the Council following the May 16, 2013 meeting, the SSC expressed interest in also considering status quo ABCs for the two monkfish management areas. Ultimately, the SSC concluded that status quo ABCs of 7,592mt for northern management area and 12,316mt for the southern management area represent the best advice the SSC can provide at this stage. This advice is based in part on the concerns and analytical difficulties inherent in the other options presented by the PDT, as discussed above.

Furthermore, despite its uncertainties, the assessment suggests that both stocks are above the biomass targets, fishing mortality is below  $F_{Max}$ , and survey trends are stable or increasing. Those outcomes give confidence in the status of the stock, and suggest that drastic reductions in catch are not warranted. Conversely, retrospective patterns persist in both assessment models, recent recruitment rates have been lower than average, and the uncertainties in age-based demographic parameters alluded to above all raise concerns about our perception of the stock. Those concerns suggest that drastic increases in catch are also not warranted. Status quo ABCs balance these conflicting considerations.

The SSC recommends that OFL for both monkfish stocks be set using the  $F_{threshold}$  values estimated in the assessment update applied to the 2014 exploitable biomass projected from the terminal year of the assessment (i.e., option 2 under “ABC Control rule” in Tables 2a and 2b document #1 above). This gives values of 17,805mt for the northern stock and 23,204mt for the southern stock. The SSC felt it was appropriate to use the existing control rule to calculate OFL, but not ABC, because the OFL calculation does not use fishing mortality rates estimated from the assessment model. This means that the inconsistency created by using biomass values adjusted for retrospective bias and fishing mortality rates that are not adjusted is not a concern.

The SSC discussed whether a new benchmark assessment for monkfish is warranted, and concluded that a benchmark should only be conducted after new research into ageing of monkfish being led by Dr. Graham Sherwood at the Gulf of Maine Research Institute and Crista Bank at UMass-Dartmouth, in collaboration with SSC member Dr. Jon Grabowski of Northeastern University, has been completed and peer-reviewed. The SSC reached this conclusion because the severity of concerns over likely ageing errors means that any other changes to the assessment are not warranted until this primary concern is addressed.

Finally, the SSC briefly discussed the merits of the existing ABC control rule for monkfish, especially in light of the recommendation to retain status quo ABCs and therefore not apply the control rule to the outcomes of the assessment update. The control rule was intended to be an interim or ad hoc approach for a data-poor resource until improvements in the assessment, notably improved age data, could be implemented. However, questions have been raised about the rationale for the control rule, especially the large difference in  $F_{ABC}$  value and resulting catch advice for the two stocks that do not seem to be consistent with the status of each. The SSC was not able to have a

thorough discussion along these lines with the time at hand, but recommends that time be dedicated for such a discussion, especially if new age information results in a major change to the assessment approach or outcomes.

Summary of recommendations

- 1. Acceptable biological catch (ABC) for the two monkfish stocks remains at the status quo levels of 7,592mt for the northern stock and 12,316mt for the southern stock.**
- 2. The overfishing limits (OFL) for the two monkfish stocks are updated to 17,805mt for the northern stock and 23,204mt for the southern stock.**
- 3. The accuracy of age estimates for monkfish remains the most significant concern, and a new benchmark assessment should be conducted when and if new information comes to light that changes our perception of the life history of the species.**
- 4. The rationale for the ABC control rule currently in place, originally intended as an interim approach, should be revisited and possibly revised.**