



New England Fishery Management Council

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To: Tom Nies, Executive Director
From: Scientific and Statistical Committee
Date: August 29, 2014

Subject: Overfishing levels (OFLs) and acceptable biological catch (ABC) recommendations for Gulf of Maine haddock and Georges Bank yellowtail flounder

The SSC met on August 25, 2014 in Boston, Massachusetts, to address the following terms of reference (TORs):

Gulf of Maine haddock

Review the SAW/SARC 59 assessment and the work of the Groundfish Plan Development Team (PDT) and provide the OFL and ABC for each year for fishing years 2015-2017 that will prevent overfishing and is consistent with the default control rule.

To meet this TOR, the SSC considered the following documents:

- 1.1. Memo from PDT to SSC re GOM haddock ABCs (August 14, 2014)
- 1.2. SARC 59 Assessment Summary for GOM haddock (August 2014) Prepublication Copy
- 1.3. 59th Northeast Regional Stock Assessment Workshop (59th SAW) Assessment Report
- 1.4. SAW SARC 59 Panelist Reports

Georges Bank yellowtail flounder

Provide the OFL and an ABC for each year for fishing years 2015 and 2016 that will meet management objectives and prevent overfishing.

To meet this TOR, the SSC considered the following documents:

- 2.1. Memo from PDT to SSC re GB yellowtail flounder ABCs (August 14, 2014)
- 2.2. Transboundary Resources Assessment Committee (TRAC) Status Report (June 2014)
- 2.3. DRAFT TRAC Stock Assessment Report for 2014 (June 2014)
- 2.4. Summary of the Diagnostic Benchmark for GB Yellowtail Flounder (April 2014)
- 2.5. 2014-2015 SSC ABC and OFL recommendations for GB Yellowtail flounder (September 3, 2013 Memo from SSC to Tom Nies)

Gulf of Maine haddock

The SSC recommends the OFL and ABC values based upon the Final Model as provided in Table 1 and Table 2 of the PDT report. These values are:

Year	OFL	ABC
2015	1,871mt	1,454mt
2016	2,270mt	1,772mt
2017	2,707mt	2,125mt

An important source of uncertainty in the assessment is the estimated size of recent strong recruitment events in 2010 and 2012. Overestimation of those cohorts can lead to overestimation of spawning stock biomass in both the assessment and projections, resulting in catch advice that is too high. The 2010 cohort has been sampled over several years, and there is greater confidence in its estimation. In contrast, the estimated size of the 2012 year class is based on only two surveys, creating less confidence in its estimation. This led the Groundfish PDT to recommend OFL and ABC values based on the “sensitivity run” from the assessment that constrained the estimated size of the 2012 year class.

Although the SSC sees the rationale for the PDT recommendation, we felt that the Final Model is a sufficient basis for catch advice for several reasons. First, the SAW/SARC endorsed the Final Model as the best available science. Second, the status of the stock is strong and extra precaution is unwarranted. Third, an operational assessment is forthcoming in 2015, which means we are unlikely to rely on longer term projections for 2016 and 2017. The PDT’s consequence analysis suggests that if the Final Model is overly optimistic and the sensitivity run is closer to the state of nature, the probability of overfishing in 2015 would reach the risk-neutral level of 50% that contemporary management strives to stay below.

Exchange of haddock between the larger Georges Bank stock and the Gulf of Maine stock remains a topic of discussion. The SSC reiterates our earlier conclusion, which corroborates that of the PDT, that data are insufficient to estimate mixing rates, and therefore to incorporate mixing into the assessment and catch advice. Furthermore, the SAW identified the “sabbatical” model, which allows for non-permanent movement between the two stock areas, as the most biologically plausible. The outcomes of catch projections using the sabbatical model do not differ greatly from projections assuming no mixing. It should be noted, however, that the SARC did not address the plausibility of different mixing scenarios, and therefore neither supported nor refuted the SAW’s conclusion about the sabbatical model. The SSC endorsed the SARC conclusion that additional empirical research is needed to resolve mixing rates.

Summary of recommendations

- 1. OFL and ABC for 2015, 2016 and 2017 are based on the Final Model from SAW/SARC59 as reported in Tables 1 and 2 of the PDT report, and listed above.**
- 2. Catch advice for 2016 and 2017 should be updated based upon the operational assessment planned for 2015, especially in light of the uncertainties associated with the size of large 2012 cohort.**
- 3. Data remain insufficient to confidently estimate mixing rates for assessment and management purposes, and additional empirical research is needed to resolve this uncertainty.**

Georges Bank yellowtail flounder

The SSC recommends an ABC for 2015 of 354mt based on an exploitation rate of 16% applied to the most recent estimate of average survey-based biomass. For the time being, the SSC recommends an ABC for 2016 of 354mt, assuming in the absence of additional information that biomass will not change. However, the SSC expects that the 2016 ABC will be revisited and revised in 2015 based on a new TRAC assessment. OFL remains unknown for this stock.

These ABC values represent a modest reduction from the current ABC of 400mt, and the target exploitation rate represents a reduction from the fishing mortality limit, F_{ref} . Such reductions are appropriate for a stock estimated to be at low biomass and trending downward. Despite the estimated stock condition and trend, the SSC is not recommending a greater reduction because the fishery does not seem to be the main factor influencing the stock and in light of the expected impacts of a drastic reduction on the industry.

In offering this ABC advice, the SSC highlights the variability and uncertainty in survey estimates. Future ABCs based on this approach could vary considerably if survey indices change substantially. This leads the SSC to recommend that time and resources be dedicated to a more thorough analysis and discussion of other survey-based control rules (e.g., those based on moving averages rather than point estimates), relative to the ad hoc approach adopted herein, in advance of the 2015 TRAC and application of its outcomes.

Finally, the SSC wishes to thank and commend NEFSC and the TRAC for such a thorough response to our recommendation that empirical approaches be considered and adopted.

Summary of recommendations

- 1. ABC for 2015 is 354mt, based on an exploitation rate of 16% applied to the most recent estimate of average survey-based biomass.**
- 2. ABC for 2016 should be revisited based on the outcomes of the expected 2015 TRAC. If new information is not available in 2015, ABC for 2016 remains 354mt assuming no change from the most recent estimate.**
- 3. More thorough analysis and discussion of survey-based control rules for the stock should take place before applications of the 2015 TRAC outcomes.**