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New England Fishery Management Council
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Ernest F. Stockwell III, *Chairman* | Thomas A. Nies, *Executive Director*

To: Tom Nies, Executive Director
From: Scientific and Statistical Committee
Date: September 8, 2015

Subject: Overfishing levels (OFLs) and acceptable biological catch (ABC) recommendations for Georges Bank yellowtail flounder for fishing years 2016 and 2017.

The SSC met on September 1, 2015 in Boston, Massachusetts, to address the following term of reference (TOR):

Provide the OFL and an ABC for each year for fishing years 2016 and 2017 that will meet management objectives and prevent overfishing.

To address this TOR, the SSC considered the following information:

1.1 Memo from PDT to SSC re GB yellowtail flounder ABCs (August 29, 2015)
1.2 Georges Bank Yellowtail Flounder, Transboundary Resources Assessment Committee (TRAC) Status Report 2015/03.
1.3 Stock Assessment of Georges Bank Yellowtail Flounder for 2015. TRAC Reference Document 2015/01.
1.4 2015-2016 SSC ABC and OFL recommendations for GB Yellowtail flounder (August 24, 2014 Memo from SSC to Tom Nies)
1.5 TRAC 2015 Georges Bank Yellowtail Flounder Assessment. Presentation to the SSC by Chris Legault, NEFSC.
1.6 Georges Bank Yellowtail Flounder ABCs. PDT Report to the SSC by Jamie Cournane, NEFMC.

The SSC recommends that ABC should not exceed 354mt for fishing years 2016 and 2017. This retains the current 2015 ABC into the upcoming fishing years. The 2015 ABC was set by applying a 16% exploitation rate to the biomass estimate in the terminal year of the first application of the empirical, or survey-based, approach now being used for the stock. OFL for the stock remains unknown.

Use of the empirical approach resulted from the 2014 diagnostic benchmark meeting for Georges Bank yellowtail flounder that was held in response to persistent concerns about the performance of the VPA model. Although several SSC members see value in considering the outputs of models that are not performing well to understand how the assumed population dynamics are not aligning with the actual population dynamics, the SSC agreed that the empirical approach currently in use is the best basis for developing catch advice.

Despite this conclusion, the SSC expressed concerns about the uncertainties in the empirical approach, including disparities in swept-area biomass estimates between the three surveys and the potential for large inter-annual changes. As a result of these concerns, the SSC concluded that annual adjustments to the ABC are not warranted in the absence of evidence of substantial changes in biomass, and therefore recommends retaining the ABC resulting from the initial application of the empirical approach. This recommendation is consistent with the recommendation in the 2014 SSC report on Georges Bank yellowtail flounder to consider control rules based on, e.g., the three-year moving average of biomass estimates or other approaches that would dampen inter-annual swings. We note, however, that applying the 16% exploitation rate to the updated biomass estimate would have resulted in little change to the ABC (354 mt versus 359 mt). Our advice is therefore based not on the numerical outcome but rather on our view of the most sound methodology.

The SSC discussed the trend of realized catch being substantially below the ABC for the stock. In 2014, catch was estimated to be only 159 mt, despite the ABC being 400 mt. On the one hand, the SSC saw this outcome as being consistent with the recommendation in our 2012 and 2013 reports to reduce catch as much as practicable in light of the poor status and substantial uncertainties surrounding the stock, and therefore the need to alleviate as many stressors as possible. On the other hand, the SSC recognized a potential risk if changes in management, markets or biology result in catch that is closer to the ABC. Although the ABC is, of course, an important determinant of the realized catch, the dynamics of the stock are affected directly by the catch and not the ABC. In other words, current status of the stock is the result of, among other factors, the 2014 catch of 159mt and not the 2014 ABC of 400mt. The implications of catch that is closer to the ABC represent an important uncertainty and potential risk.

Therefore, the SSC recommends developing more detailed understanding of the interacting management, market and biological factors that determine realized catch of the stock. Correspondence from the fishing industry received in advance of the meeting and comments provided during the meeting were helpful in identifying some of the potential factors. These include accountability measures for windowpane flounder, ABC and individual ACE of George Bank yellowtail flounder relative to other stocks, spatial management measures, low lease prices for yellowtail flounder quota relative to ex-vessel prices, parasites affecting the health of yellowtail flounder, and others.

The complex array of factors determining catch of the stock, and the resulting disparity between realized catch and ABC, means that catch is a poor indicator of stock status for Georges Bank yellowtail flounder. The TRAC report provided to the SSC was clear that the assessment is based on survey data and not catch. To the extent that catch factors into perceptions of the stock, it should be an indication of fishing mortality and not biomass. It was apparent to the SSC in its own deliberations and through correspondence and comments from the fishing industry that discussion of low catches and utilizations rates risks a perception that catch is being used an indicator of biomass. The SSC therefore emphasizes that neither the TRAC nor our own deliberations considered catch as an indication of biomass.

Finally, the SSC had some discussion of the trends being observed in the stock and the drivers of those trends. These include poor body condition of fish, persistent low recruitment, competition with or direct predation by haddock or other groundfish species, and so on. The SSC did not delve deeply into that discussion, nor did we prioritize those issues and research recommendations,

recognizing that the diagnostic benchmark represented a recent and much more thorough examination.

Summary of recommendations

1. **ABC for Georges Bank yellowtail flounder for fishing year 2016 should not exceed 354 mt. In the absence of evidence of a substantial change in biomass in the 2016 TRAC assessment, ABC for fishing year 2017 should remain 354 mt. OFL for the stock remains unknown.**
2. **The interacting management, market and biological factors that determine actual catch from the stock should be more closely examined in order to better understand why catch remains substantially below ABC and how that disparity might change in the future.**