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Dr. John F. Quinn, *Chairman* | Thomas A. Nies, *Executive Director*

To: Tom Nies, Executive Director
From: Scientific and Statistical Committee
Date: September 2, 2017

Subject: Terms of Reference – Overfishing levels (OFLs) and acceptable biological catch (ABC) recommendations for the Northeast Skate Complex for fishing years 2018 and 2019.

The SSC met on August 8, 2017 in Providence, Rhode Island, to address the following terms of reference (TORs):

1. Review method for estimating gillnet discard mortality for use in developing ABC specifications for fishing years 2018-2019.

2. Review and approve revised estimate of MSY resulting from preliminary discard mortality updates.

3. Recommend an ABC for the Northeast Skate Complex consistent with the fishing mortality limit (FMSY or its proxy) and the ABC control rule or rebuilding program for fishing years 2018-2019 contingent on the use of the approved method for finalizing discard mortality estimates.

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

2.1 August 3, 2017 memo from Skate Plan Development Team to SSC – NE Skate Complex ABCs for FY 2018 – 2019

2.2 Memo from the NEFSC. Re: Update of Skate Stock Status Based on NEFSC Bottom Trawl Survey Data through Autumn 2016/Spring 2017

2.3 Sulikowski et al. Evaluating the Condition and Discard Mortality of Winter Skate, *Leucoraja ocellata*, Following Capture and Handling in the Sink Gillnet Fishery

2.4 Risk Policy Matrix for Skates

In response to TOR1, **the SSC recommends the new estimates of discard mortality of winter skates (14%) caught by sink gillnets** that was provided in the report by Sulikowski et al. (in review 2017) **are suitable for use in assessment of the skate complex and development of catch advice**. The 14% used is an average of the sex-specific discard mortality rates generated by the research (female discard mortality = 11% and male discard mortality = 17%), but since sex-specific catch is unknown, the average of the two sex-specific discard mortality rates was used as an overall discard mortality rate for the stock. This is in agreement with the recommendation of the Skate PDT.

Although the discard mortality work was still in review, the SSC was provided with the paper describing the work (see item 2.3 in meeting materials) and felt the methods were valid for use during the specification setting process. The resulting discard mortality estimates have been incorporated into the scientific basis for management of skate fisheries, and the SSC likewise approves use of the new estimate.

Following TOR1 and in response to TOR2, **the SSC recommends the updated estimate of MSY for the skate complex of 36,794 mt**, calculated using the new discard mortality estimate for winter skate in the sink gillnet fishery, as well as the previously approved discard estimates for scallop dredge (little and winter skates; see SSC report to the Council dated 9/21/2015). Similarly, in response to TOR3, **the SSC recommends** the skate PDT recommended **ABC of 31,327 mt** for fishing years 2018 and 2019. This ABC incorporates the new discard mortality estimates for winter skate in the sink gillnet fishery, which cause an approximately 2% change in the ABC relative to using the previously assumed discard mortality estimate for winter skate in sink gillnets.

The SSC also discussed the performance of skate science and management in light of the status of the skate complex, and merits of the index based approach for the purposes of science and management of the skate complex. Overall, management seems to be relatively effective, given that six of the seven species (winter, little, barndoor, smooth, clearnose, rosette) are near or above their species-specific biomass targets, and all of which are above their respective biomass thresholds. The exception for the complex was thorny skate, which continues to indicate poor stock status.

In response to the stock status of thorny skate, a prohibition on landing this species was implemented. However, the consistent poor stock status of the species suggests that this management action may be insufficient for rebuilding the stock. The discussion at the meeting indicated that some other stressor, environmental change, or spatial shift of the population, may be contributing to the lack of stock recovery. The discussion also highlighted some current research being done on habitat preferences and discard mortality of thorny skate, which may shed light on why this species is not being captured in the trawl survey to the extent it was in the past. The SSC recommends that this research be brought to the SSC when completed so that the SSC might evaluate this information in the context of the poor stock status of this species.

Summary of recommendations

1. The new estimates of discard mortality of winter skates (14%) caught by sink gillnets should be used in assessment and development of catch advice for the skate complex.

2. The updated estimate of MSY incorporating the new estimate of discard mortality is 36,794 mt.

3. ABC for fishing years 2018 and 2019 incorporating the new estimate of discard mortality is 31,327 mt.

4. A request for updates on current thorny skate research as it develops be brought before the SSC for consideration.