



New England Fishery Management Council

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John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

MEMORANDUM

DATE: November 17, 2020
TO: Scientific and Statistical Committee (SSC)
FROM: Tom Nies, Executive Director
SUBJECT: **Terms of Reference – Overfishing levels (OFLs) and acceptable biological catch (ABC) recommendations for Atlantic scallops for fishing year 2021 and 2022 (default)**

Terms of Reference:

1. Review changes to meat weights and dredge efficiency used to develop 2020 survey estimates, and growth and selectivity parameters used in the SAMS model to project biomass. Evaluate the PDT's approach for addressing survey data gaps that resulted from canceled surveys due to the COVID-19 pandemic. Provide the Council with a recommendation as to whether these changes are appropriate.
2. Using reference points updated by the management track assessment (2020), and considering the Council's Risk Policy Statement, review the Scallop PDT's updated projections for the scallop resource, and provide the Council with OFL and ABC recommendations using the Council's ABC control rule for fishing years 2021 and 2022 (default).

Follow-up on 2019 SSC Recommendations:

3. In the fishery access areas, the fishery is harvesting the available strong year classes, but in some areas these year-classes are disappearing faster than what was expected (specifically the Nantucket Lightship West Area) when considering both fishing and assumed natural mortality rates. This does not represent a threat to the stock at this point but is something that should be closely monitored.
4. Further investigation into the: 1) different growth rates found in different scallop harvesting areas, particularly the Nantucket Lightship region, 2) further work to develop gonad-based estimates of SSB and reference points.

Background

Framework 33 to the Scallop FMP will include fishery specifications for 2021, as well as default measures for 2022. The Council requests that the SSC provide OFL and ABC recommendations for these years, to be included in Framework 33. The SSC final report from last year has been included for reference (Doc. 1.2), as has the summary report from the 2020 scallop management track assessment which was reviewed in September of 2020 (Doc. 1.4). The projection model (Scallop Area Management Simulator or SAMS) and 2021 projections were not reviewed as part of the 2020 management track assessment, and the Council is requesting that the SSC review

adjustments proposed by the scallop PDT. OFL and ABC projections were developed after survey data became available in late September.

The Scallop PDT met on November 5th, 10th, and November 16th, 2020, and finalized recommendations for updated estimates of OFL and ABC for fishing years 2021 and 2022 (default only) through correspondence.

The 2020 management track assessment updated biological reference points for the scallop resource. The current ABC control rule sets ABC at a level that has a 25-percent probability of exceeding OFL (*i.e.*, a 75-percent probability that it will not exceed OFL). The F rate associated with OFL decreased from F=0.64 to F=0.61 in the 2020 Management Track Assessment. The ABC F rate with a 25% chance of exceeding OFL is estimated at F=0.45. In 2019, the stock was not overfished and overfishing was not occurring. The OFL and ABC estimates for 2021 and 2022 (default) using the updated reference points, and are provided in Document 1.3.

The 2018 benchmark assessment indicated that there had been substantial changes in growth over time, with growth rates tending to increase from 1994-2012. In recent years, growth appears to have slowed based on survey size-frequencies. The 2020 update assessment modified growth assumptions in the CASA model by applying slower growth rates in the Mid-Atlantic and Georges Bank in recent years to account for the perceived change in growth.

The PDT continued to compare survey results with projections from the previous year. In the two years since the 2018 benchmark assessment, projections have been overly optimistic compared to the survey results, with some exceptions.

Based on the reduced growth expectations in the CASA model, and what appears to be an overestimation of biomass in recent years, the PDT reduced the maximum growth potential (L_{∞}) across most of Georges Bank and the Mid-Atlantic in the SAMS model. Reducing L_{∞} has the net effect of reducing exploitable biomass estimates for the coming fishing years. Fishery selectivity assumptions for scallops in high density areas of the Nantucket Lightship area were adjusted to account for anomalous slow growth.

As with previous years, the PDT memo will address several data treatment issues (optical and dredge). Dredge efficiency in high density areas continues to be an issue as there were large differences between the individual survey estimates of abundance and biomass in the Nantucket Lightship South area; the optical (*i.e.*, HabCam and drop camera) survey estimates of biomass were similar, but several times larger than the dredge survey estimates. When the PDT compared survey estimates from all other non-high density areas, there was general agreement in total biomass estimates across dredge, drop camera, and Habcam results. The Scallop PDT has recommended using finer scale meat weight estimates based on data from the 2016-2020 VIMS dredge surveys in areas of the Nantucket Lightship region.

The OFL and ABC estimates are based on projections of exploitable biomass across the entire resource, and that allocations to the fishery are based on projected landings from areas open to the fishery.

Members of the PDT will present updated values, including a review of any modifications that have been made to relevant models used to set fishery allocations.

Information

- 1.1 Terms of Reference for Sea Scallops for November 17, 2020, SSC Meeting
- 1.2 SSC Final Report on OFL and ABC for Scallop Framework 32, November 22, 2019
- 1.3 Scallop PDT recommendations for 2021 and 2022 (default) OFL and ABC
- 1.4 Sea scallop assessment update from the Fall 2020 Management Track Assessment (September 2020)
- 1.5 Management Track Peer Review Panel Report (September 2020). *See pp.8-12.*
- 1.6 Risk Policy Matrix (2020) - Atlantic Sea Scallops
- 1.7 NEFMC Risk Policy Roadmap that includes the Risk Policy Statement and Implementation Plan, see pp. 4-5.
- 1.8 State of the Ecosystem Report for the Northeast U.S. Shelf – Available at: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/ecosystems/state-ecosystem-reports-northeast-us-shelf>

Additional Background Documents

- 1.9 Scallop PDT recommendations for 2019-2020 (default) ABC, dated October 9, 2019
- 1.10 Yochum, N. and DuPaul, W.D. Journal of Shellfish Research, Vol. 27, No.2, 265-271, 2008.
- 1.11 Hart, D.R. Quantifying the tradeoff between precaution and yield in fishery reference points. ICES Journal of marine Science, doi.10.1093/icesjms/fss204
- 1.12 SARC 65 – Scallop Appendix A1 – Sea Scallop Growth
- 1.13 SARC 65 – Scallop Appendix A2 – Scallop Shell Height/Meat Weight Relationships
- 1.14 2020 Management Track Assessment – Appendix I, CASA Models
- 1.15 Scallop PDT Meeting Summaries
 - a. October 15-28, 2020 (four meetings)
- 1.16 SARC 65 Full Report *if available* [\(link only\)](#)