Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **Atlantic Striped Bass Management Board**

FROM: **Atlantic Striped Bass Technical Committee**

DATE: **April 6, 2021**

SUBJECT: **2020 Albemarle Sound-Roanoke River Striped Bass Stock Assessment**

The Striped Bass Technical Committee (TC) met via webinar on March 9, 2021 to review the 2020 Albemarle Sound-Roanoke River (A-R) striped bass stock assessment (Lee et al. 2020). Under Addendum IV to Amendment 6 to the Atlantic Striped Bass Interstate Fishery Management Plan, the A-R stock is managed by the State of North Carolina using reference points from the latest A-R stock assessment accepted by the TC and approved for management use by the Striped Bass Management Board (Board).

Staff from the North Carolina Division of Marine Fisheries (NCDMF) provided a detailed overview of the stock assessment model set-up, model results, stock status, management response, and peer review process. An independent, external peer review panel has approved the assessment for management use for at least the next five years. TC members discussed the assessment model and results and provided recommendations for NCDMF staff to consider in future assessments.

The TC recommends the Board approve the 2020 Albemarle Sound-Roanoke River striped bass stock assessment for management use. The TC identified the following recommendations for NCDMF to consider in future A-R stock assessments:

- Continue discussions on the natural mortality estimate (0.4) used in the assessment model and consider alternative methods to develop that estimate. NCDMF noted there was some concern about whether the natural mortality estimate used in the assessment was too high.
- Continue exploring factors contributing to peaks in fishing mortality (e.g. 2012) and the overall high variability of the stock. NCDMF noted that low estimates of age 3-5 fish associated with poor year classes in prior years contribute peaks in fishing mortality. NCDMF also noted the potential impacts of environmental conditions like flow and predation on recruitment variability.
- Consider impacts of immigration/emigration of fish into and out of the management area and how that is reflected in fishing mortality.
- Explore alternative targets and thresholds that are less conservative than the current reference points for female spawning stock biomass. If recruitment variability is largely

driven by environmental factors and there is not a strong stock-recruit relationship, the current reference points for female spawning stock biomass may be overly conservative.

- Continue exploring factors that impact recruitment, including the observed patterns of 2-3 consecutive years of poor recruitment followed by 1-2 years of higher recruitment. NCDMF discussed ongoing analysis comparing flow rates during peak spawning time to the juvenile abundance indices.
- Consider developing interim projections to estimate stock parameters for the period between stock assessments (2018-2022) and take into account the low levels of recruitment observed in recent years.
- Consider using tagging data to help with validating the growth curve.
- Continue reviewing historical data on the fishery for insight into periods of population highs and lows and what might be considered normal for this stock.

Albemarle Sound-Roanoke River Stock Status Overview

The 2020 A-R assessment (Lee et al. 2020) uses a forward-projecting fully-integrated, age-structured statistical model to estimate population parameters and reference points for the A-R striped bass stock for 1991-2017. The A-R stock is managed using reference points for female spawning stock biomass (SSB) and fishing mortality (*F*) with threshold values based on 35% spawning potential ratio and target values based on 45% spawning potential ratio. The assessment estimated female SSB in 2017 (terminal year) was 35.6 metric tons, which is below the SSB threshold of 121 metric tons. The assessment estimated *F* in 2017 was 0.27, which is above the *F* threshold of 0.18. These results show that the stock is overfished and overfishing is occurring.

References

Lee, L.M., T.D. Teears, Y. Li, S. Darsee, and C. Godwin (editors). 2020. Assessment of the Albemarle Sound-Roanoke River striped bass (*Morone saxatilis*) in North Carolina, 1991-2017. North Carolina Division of Marine Fisheries, NCDMF SAP-SAR-2020-01, Morehead City, North Carolina. 171 p. Available at http://portal.ncdenr.org/c/document_library/get_file?uuid=3c11cbb9-2a84-425c-9694-eb788ed718de&groupId=38337