SUMMARY DOCUMENT

Estuarine Striped Bass Fishery Management Plan Amendment 2 Adaptive Management Data Evaluation and Harvest Strategy for Tar-Pamlico and Neuse Rivers Stocks



This Summary Document provides background information for Amendment 2 to the N.C. Striped Bass Fishery Management Plan and the adaptive management steps prescribed for the Tar-Pamlico and Neuse Rivers stocks.

November 2025

Summary

Estuarine striped bass (*Morone saxatilis*) in North Carolina are managed under Amendment 2 to the North Carolina Fishery Management Plan (FMP) adopted in November 2022 and its subsequent revision (2024). Striped bass stocks in North Carolina are managed jointly by the North Carolina Marine Fisheries Commission (MFC) and the North Carolina Wildlife Resources Commission (WRC). Amendment 2 management for the Tar-Pamlico and Neuse rivers stocks carried forward the Supplement A no-possession measure, maintained the gill net closure above the ferry lines, and maintained the use of 3-foot tie-downs for gill nets below the ferry lines. The Amendment 2 adaptive management framework for the Tar-Pamlico and Neuse rivers stocks prescribes that in 2025, data through 2024 will be evaluated to determine if populations are self-sustaining and if sustainable harvest can be determined. In addition, the MFC approved the following measure in Amendment 2 regarding the gill net closure: "maintain the gill net prohibition through 2024 to allow for assessment of its performance". Results of the data evaluation indicate the harvest and gill net closures have been ineffective at increasing abundance of adult striped bass, expanding the age structure, or promoting recruitment. Factors other than fishing mortality are preventing sustainability of the Tar-Pamlico and Neuse rivers striped bass stocks. Consistent with the Amendment 2 adaptive management framework, staff with the DMF and WRC have developed alternate management strategies that provide protection for and access to the resource.

Amendment 2 Goal and Objectives

The goal of Amendment 2 is to manage the estuarine striped bass fisheries to achieve self-sustaining populations that provide sustainable harvest based on science-based decision-making processes. If biological and/or environmental factors prevent a self-sustaining population, then alternate management strategies will be implemented that provide protection for and access to the resource. The following objectives will be used to achieve this goal.

- Implement management strategies within North Carolina and encourage interjurisdictional management strategies that maintain and/or restore spawning stock with adequate age structure and abundance to maintain recruitment potential and to prevent overfishing.
- Restore, enhance, and protect critical habitat and environmental quality in a manner consistent with the Coastal Habitat Protection Plan, to maintain or increase growth, survival, and reproduction of the striped bass stocks.
- Use biological, social, economic, fishery, habitat, and environmental data to effectively monitor and manage the fisheries and their ecosystem impacts.
- Promote stewardship of the resource through public outreach and interjurisdictional cooperation regarding the status and management of the North Carolina striped bass stocks, including practices that minimize bycatch and discard mortality.

Background

There are two estuarine striped bass management units and four stocks in North Carolina. The Northern Management Unit includes the Albemarle Sound Management Area (ASMA) and Roanoke River Management Area (RRMA). The striped bass stock in these management areas is the Albemarle-Roanoke (A-R) stock. The A-R stock is also included in the management unit of Amendment 7 to the Atlantic States Marine Fisheries Commission (ASMFC) Interstate FMP for Atlantic Striped Bass. The Southern Management Unit is the Central/Southern Management Area (CSMA) and includes stocks in the Tar-Pamlico, Neuse, and Cape Fear rivers.

CSMA Stock Status

Stock status of the CSMA striped bass is unknown, no stock status determination has been performed, and no biological reference points have been generated. The CSMA Estuarine Striped Bass Stocks report, completed in 2020, is a collection of 1) all available data, 2) all management effort, and 3) all major analyses that have been completed for CSMA stocks; this report served as an aid in development of Amendment 2. While this report does not determine stock status, it does indicate sustainability of Tar-Pamlico and Neuse rivers stocks is unlikely at any level of fishing mortality, citing the lack of natural recruitment as the primary limiting factor. The report concludes that without stocking, abundance will decline.

Supplement A to Amendment 1

At the November 2018 MFC business meeting, the N.C. Division of Marine Fisheries (DMF) recommended development of temporary management measures to supplement the N.C. Estuarine Striped Bass FMP Amendment 1 providing for a no-possession provision for striped bass in the internal coastal and joint waters of the CSMA to protect important year classes of striped bass while Amendment 2 to the FMP was developed. This supplement, Supplement A, was adopted by the MFC at their February 2019 business meeting and by the WRC in March 2019. Supplement actions were implemented March 29, 2019, consisting of the following:

- Commercial and recreational no possession measure for striped bass (including hybrids) in coastal and inland fishing waters of the CSMA (Proclamation FF-6-2019). The WRC hook and line closure proclamation had the effect of suspending rules 15A NCAC 10C .0107 (I) and 10C .0314 (g). A no-possession requirement already exists in the Cape Fear River by rule.
- Consistent with Amendment 1, commercial anchored gill-net restrictions requiring tie-downs and distance from shore measures will apply year-round.

Ferry Line Gill Net Closures

Prior to 2019, after the commercial striped season in the Tar-Pamlico and Neuse rivers closed, large mesh gill nets were required to use three-foot tie downs throughout the entirety of the rivers and be set greater than 50 yards from shore in the upper portions of the rivers.

These restrictions were based on data indicating their effectiveness with subsequent analysis estimating striped bass discards were reduced by approximately 82% after these restrictions were implemented.

See Figure 1 for gill net restrictions in the Tar-Pamlico, Pungo, Bay, and Neuse rivers in place prior to implementation of the ferry line gill net closures.

Independent of Supplement A but also at the February 2019 MFC business meeting, the following motion passed:

> "Ask the director of NCDMF to issue a proclamation, effective in conjunction with the Supplement, that restricts the use of gill-nets that interact with striped bass upstream of the ferry lines and requires attendance of gill-nets that interact with striped bass upstream of the tie-down lines."

After careful consideration, the director declined the motion request, concluding the scientific data did not support the requested management measure (see letter from the DMF director to the MFC chairman dated March 4, 2019).

On March 13, 2019, the MFC held an emergency meeting and passed a motion directing the director to issue a proclamation regarding gill nets, beyond what was contained in Supplement A. Proclamation M-6-2019 implemented the following:

- Prohibits the use of all gill nets upstream of the ferry lines from the Bayview Ferry to Aurora Ferry on Pamlico River and the Minnesott Beach Ferry to Cherry Branch Ferry on the Neuse River.
- Maintains tie-down (vertical height restrictions) and distance from shore restrictions for gill nets with a stretched mesh length 5 inches and greater in the western Pamlico Sound and rivers.

North Carolina General Statute section 113-221.1(d), authorizes the Chair of the MFC to call an emergency meeting (pursuant to the request of five or more MFC members) to review the desirability of directing the fisheries director to issue a proclamation. Once the MFC votes under this provision to direct issuance of a proclamation, the fisheries director has no discretion to choose another management option and is bound by law to follow the MFC decision. In these cases, under existing law, the decision of the MFC to direct the director to issue a proclamation is final and can only be overruled by the courts.

Amendment 2

Amendment 2 to the N.C. Estuarine Striped Bass FMP was adopted by the MFC at its November 2022 business meeting. The amendment included the no-possession measure for the Tar-Pamlico and Neuse rivers stocks that was included in Supplement A. Amendment 2 also maintained the gill net closure above the ferry lines and the use of 3-foot tie-downs for gill nets below the ferry lines. The draft of Amendment 2 presented to the MFC at their February 2022 business meeting included discussion of the ferry line gill net closures and options that would have provided limited access for the gill net fishery above the ferry lines while continuing to minimize striped bass discards. However, at that meeting, the MFC

approved a motion to send the draft Estuarine Striped Bass FMP Amendment 2 for review by the public and advisory committees with the change of deleting these options. Therefore, the only option considered by the public, Advisory Committees, and MFC related to the ferry line gill net closure in Amendment 2 was to maintain it.

Amendment 2 included two measures for the Tar-Pamlico, and Neuse rivers stocks that require reconsideration after 2024. First, the adaptive management framework prescribes that in 2025, data through 2024 will be reviewed "*to determine if populations are self-sustaining and if sustainable harvest can be determined*". In addition, the MFC approved the following motion: "*maintain the gill net prohibition through 2024 to allow for assessment of its performance*".

Adaptive Management

Adaptive management allows managers to adjust management measures based on new information or data. Management options which are selected during FMP adoption account for the most up-to-date data on biological and environmental factors which affect the stock. Data through 2024 were reviewed in early 2025 to determine the impact of the 2019 no-possession provision on the stocks.

If the data review suggests continuing the no-possession provision is needed for stock recovery, no changes in harvest management measures will be recommended until the next FMP Amendment is developed. Adaptive management may be used to adjust management measures including area, time, and gear restrictions if it is determined additional protections for the stocks are needed.

If analysis indicates the populations are self-sustaining and a level of sustainable harvest can be determined, recommendations for harvest strategies will be developed. Conversely, if analysis indicates biological and/or environmental factors prevent a self-sustaining population, then, consistent with the goal of Amendment 2, alternate management strategies will be developed that provide protection for and access to the resource.

2025 Data Review

Methods

Several data sets were updated with data through 2024 and analyzed to assess the impact of the 2019 no-possession provision on the Tar-Pamlico and Neuse rivers stocks. Analysis included evaluation of adult abundance, age structure, natural recruitment, and hatchery contribution. The analysis also considered environmental conditions (e.g., river flow), changes to stocking strategies, and new life history information. Details of complete data analysis and results can be found in "*Analysis of Striped Bass Fishery-Independent and Fishery-Dependent Data from the Tar-Pamlico and Neuse Rivers for Purposes of Amendment 2 Adaptive Management*".

Summary of Results

- No 'wild' juveniles have been caught in the Tar-Pamlico or Neuse rivers since the juvenile survey began in 2017, except two "wild" fish were caught in 2021
- During 2019–2024 the percentage of hatchery striped bass on the spawning grounds of the Tar-Pamlico and Neuse rivers has increased to nearly 100%
- During 2019–2024 the percentage of hatchery origin striped bass in the lower Tar-Pamlico and Neuse rivers has been variable ranging from <50% to >90%
- Abundance of all age classes in the lower rivers is significantly lower after the harvest closure
- Abundance of all age classes on the spawning grounds did not increase significantly after the harvest closure

Conclusions

- The harvest and gill net closures have been ineffective at increasing adult abundance, expanding the age structure, and promoting recruitment
- The Tar-Pamlico and Neuse rivers striped bass stocks are currently not sustainable
- Factors other than fishing mortality and inadequate spawning abundance are preventing sustainability of the Tar-Pamlico and Neuse rivers striped bass stocks
- Acoustic and conventional tagging data indicate most 'wild' fish in the Tar-Pamlico and Neuse rivers are part of the Albemarle-Roanoke stock
- Environmental factors and declines in the Albemarle-Roanoke stock have contributed to reduced striped bass abundance in the Tar-Pamlico and Neuse rivers

Based on data from the DMF and WRC fishery-independent and dependent sampling programs reviewed through 2024, the striped bass populations in the Tar-Pamlico and Neuse rivers are currently not self-sustaining. Evaluation of the harvest and gill net closures shows these measures have been ineffective at increasing adult abundance, expanding the age structure, and promoting natural recruitment through year six of implementation. Striped bass have been shown to quickly rebound even at low population levels given favorable environmental conditions (Robitaille et al. 2011; DFO 2023), suggesting factors other than fishing mortality and inadequate spawner abundance are preventing successful reproduction and self-sustaining striped bass populations in the Tar-Pamlico and Neuse rivers.

Acoustic telemetry and genetic data suggest there are three groups of striped bass in the Tar-Pamlico and Neuse rivers. Most of the fish are hatchery reared stocked fish, followed by 'wild' fish originating from the Albemarle-Roanoke, with a small portion of 'wild' fish originating from the spawning grounds on the Tar-Pamlico and Neuse rivers.

Management Changes

Consistent with the Amendment 2 goal and adaptive management framework, the DMF and WRC staff have developed a harvest management strategy that provides protection for and access to the resource. Tagging data was reviewed to evaluate the spatial extent and timing of Albemarle-Roanoke and stocked striped bass residence in the Tar-Pamlico and Neuse rivers. The harvest management strategy limits the timing of and spatial extent of allowed harvest in the Tar-Pamlico and Neuse rivers to concentrate harvest on stocked fish while limiting harvest of Albemarle-Roanoke stock striped bass to the greatest extent possible. Additionally, harvest will be limited to allow for mature stocked striped bass abundance in the rivers to be maintained so in the event of favorable environmental conditions, natural reproduction could occur.

Management measures for the recreational fishery will be:

- Open recreational harvest season above the large-mesh gill net distance from shore demarcation lines (Figure 1) in the Tar-Pamlico and Neuse rivers April 1–30
- One fish per person per day recreational creel limit
- An 18–22 inch total length harvest slot, or >27 inch total length

Management measure for the commercial fishery will be:

- Open commercial harvest season above the large-mesh gill net distance from shore demarcation lines (Figure 1) in the Tar-Pamlico and Nesue rivers April 1–30
- One fish per person per day trip limit
- An 18-22 inch total length harvest slot, or >27 inch total length
- Allow hook-and-line as a legal commercial gear in the striped bass commercial fishery (consistent with Amendment 2)
- Continue commercial tagging requirement
- Maintain tie-down and distance from shore requirements for non-incidental take permit exempt gill nets and implement additional gill net restrictions to further reduce incidental take of striped bass in the shad gill net fishery

Recreational and commercial seasons in Joint and Coastal Fishing Waters will be opened by proclamation.

Timeline

(gray indicates completed step)

Supplement A to Amendment 1 adopted	March 2019
Ferry Line Gill Net Closure implemented	March 15, 2019
Amendment 2 adopted	November 2022
Division begins data review	January 1, 2025
Division provides background to MFC	May 21 - 23, 2025
Division presents data analysis/conclusions/next steps to MFC	August 2025
Division and WRC hold public information meeting to present harvest plan and answer questions	November 5, 2025
Division presents harvest management plan to MFC	November 2025
Harvest season opens	April 1 2026

References

Fisheries and Ocean Canada (DFO). 2023. Update of spawner abundance and biological characteristics of Striped Bass (*Morone saxatilis*) in the southern Gulf of St. Lawrence to 2022. DFO Canadian Science Advisory Secretariat Science Response. 2023/004.

North Carolina Division of Marine Fisheries (NCDMF). 2019. Supplement A to Amendment 1 to the N.C. Estuarine Striped Bass Fishery Management Plan. Implementation of a Striped Bass No-Possession Limit in the Internal Coastal and Joint Fishing Waters of the Central Southern Management Area. North Carolina Department of Environmental Quality. Division of Marine Fisheries. Morehead City, NC. 37 p.

NCDMF. 2022. North Carolina Estuarine Striped Bass Fishery Management Plan, Amendment 2. North Carolina Division of Marine Fisheries, Morehead City, North Carolina. 149 p.

Robitaille, J., M. Bérubé, A. Gosselin, M. Baril, J. Beauchamp, J. Boucher, S. Dionne, M. Legault, Y. Mailhot, B. Ouellet, P. Sirois, S. Tremblay G. Trencia, G. Verreault and D. Villeneuve. 2011. Recovery Strategy for the Striped Bass (Morone saxatilis), St. Lawrence Estuary Population, Canada. Species at Risk Act Recovery Strategy Series. Ottawa : Fisheries and Oceans Canada. xi + 51 p.

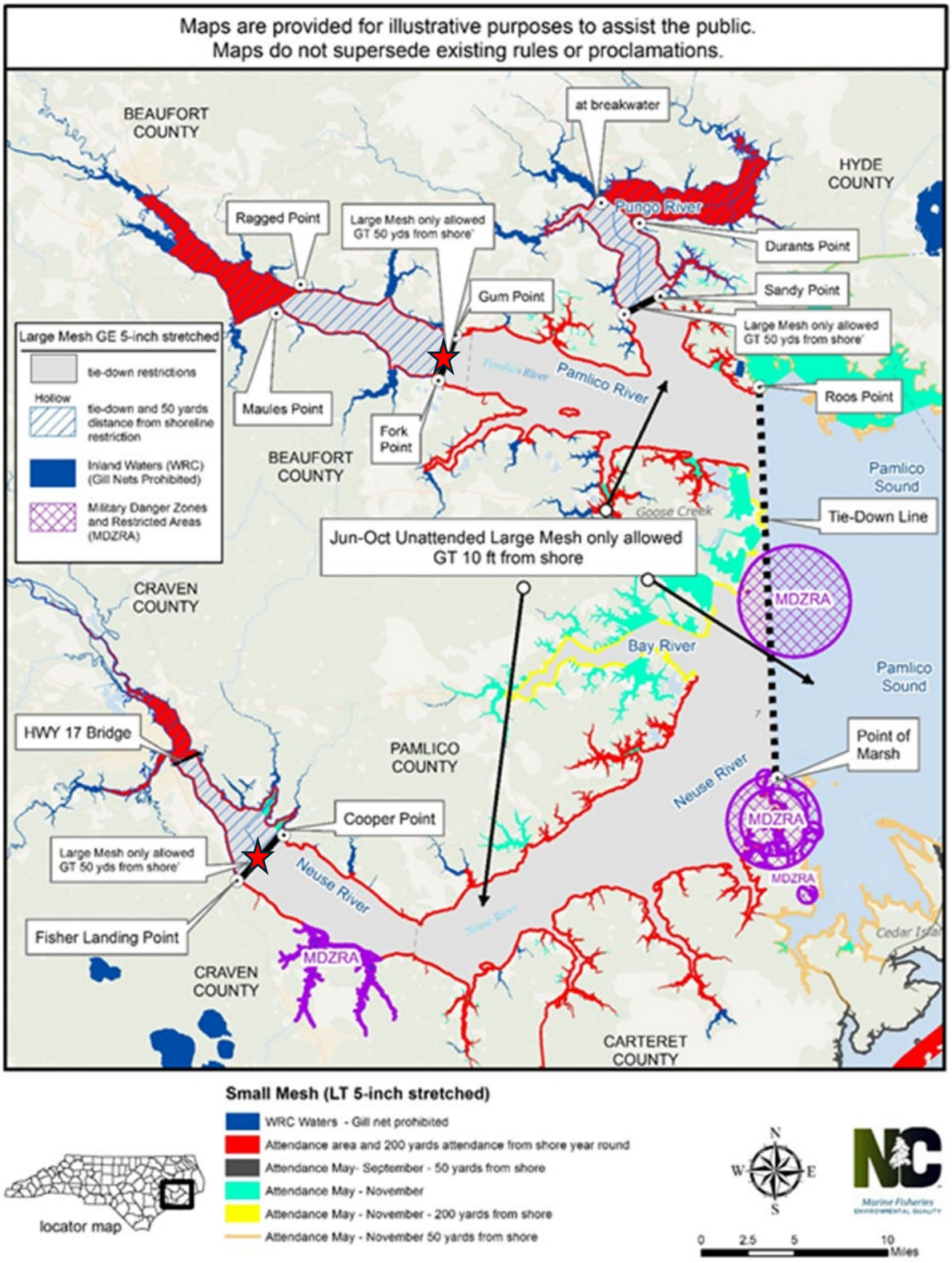


Figure 1. Gill-net regulations for small and large mesh gill nets in the Pamlico, Pungo, Bay, and Neuse rivers. LT=less than; GT=greater than. Distance from shore lines indicated by red stars.