Virginia's Menhaden Fisheries Update

ASMFC Atlantic Menhaden Fishery Management Board
May 1, 2023

Pat Geer
Chief of Fisheries Management
Virginia Marine Resources Commission

Atlantic Menhaden – Virginia Recent History Pre 2020

Fishery was Managed by General Assembly

Sep 2019: Reduction Fleet exceeds the Bay Cap of 51,000 mt

Oct 2019:   ASMFC finds VA out of compliance with Amendment 3

Dec 2019: SOC concurs with non-compliance and gives VA until June 16, 2020 to address the issue and come into compliance with Amendment 3

Atlantic Menhaden – Virginia Recent History 2020 - 2021

March 2020: General Assembly give VMRC Authority to Manage
- (SB791 and HB1448)
- Menhaden Management Advisory Committee
  - Begins meeting at least twice per year

April 2020: MRC approves modifications to Chapter VAC 20-1270-10 et seq., "Pertaining to Atlantic Menhaden" accepting management authority and lowering 2020 Bay Cap to 36,196 mt

Jun-Aug 2020: 4 net spills associated with the purse seine industry

Jun-Sep 2021: 4 net spills associated with the purse seine industry

Atlantic Menhaden – Virginia Recent History 2022 - 2023

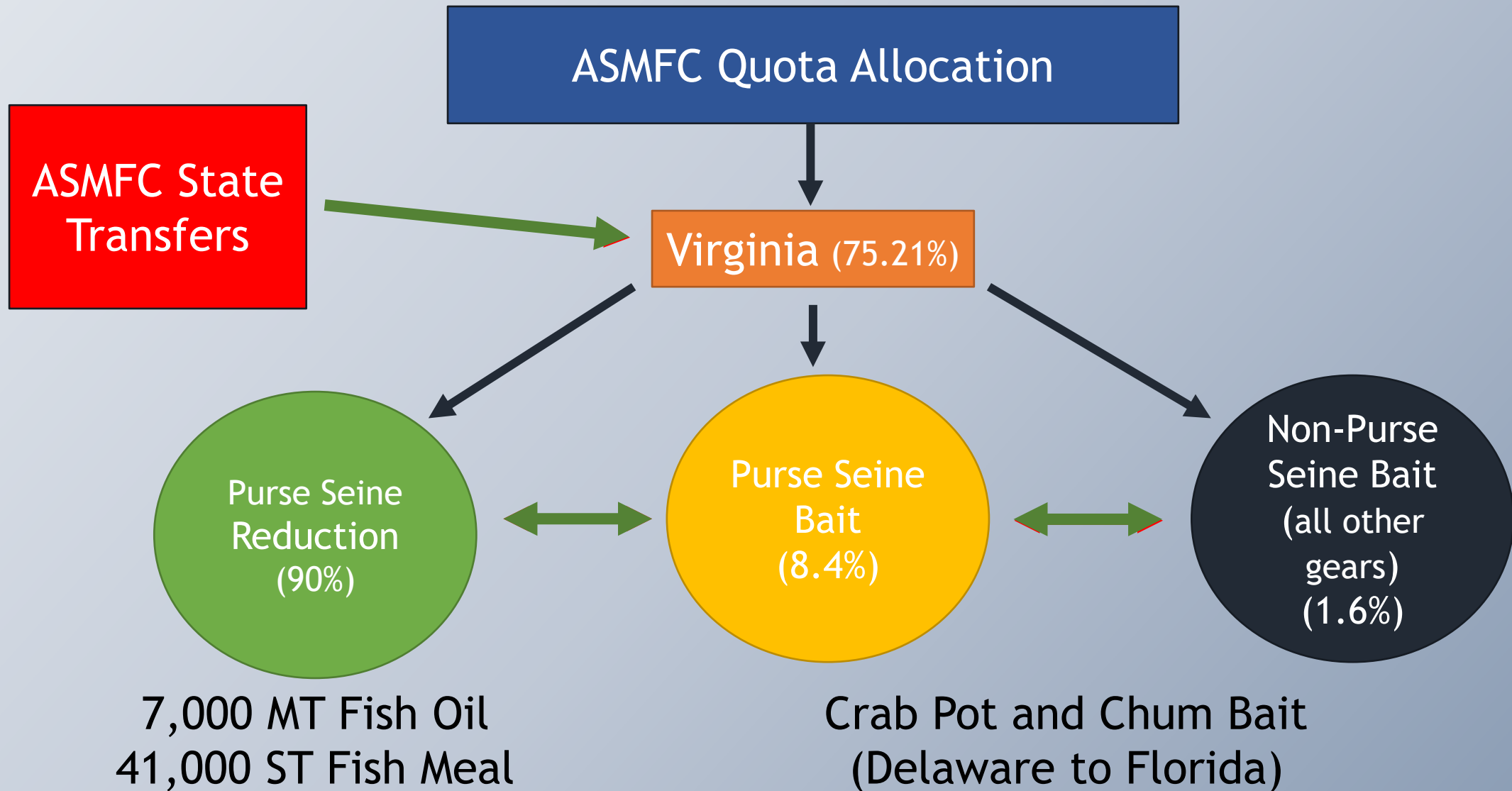June 2022: TRCP, State & National Groups request closing the Bay

June 28, 2022: MRC Board approved regulatory amendments for a temporary reciprocal quota transfer system between the purse seine menhaden reduction sector and the purse seine menhaden bait sector during the 2022 fishing year.

July 2022: 3 fish spills on Eastern Shore

Dec 2022: Public Hearing to create area and spatial closures
  • MRC Board proposes an MOU

ASMFC Quota Allocation

ASMFC State Transfers

Virginia (75.21%)

Purse Seine Reduction (90%)

Purse Seine Bait (8.4%)

Non-Purse Seine Bait (all other gears) (1.6%)

7,000 MT Fish Oil
41,000 ST Fish Meal

Crab Pot and Chum Bait
(Delaware to Florida)

Net Tears and Fish Spills

- A number of fish spills associated with the menhaden purse seine fisheries washed ashore in 2022 impacted local beaches and waterways.
- July 1: Silver Beach – source unknown.
- July 5: Silver Beach – Ocean Harvesters.
- July 25: Kiptopeke State Park – Ocean Harvesters

Christine Snook

Proposed Bay Temporal and Spatial Restrictions – Dec 2022

Time Restrictions
- 17 Closed Days – 8.5% of Bay Season
- 6.1% of Bay Effort

Area Restrictions
- 1 nm Buffer
- 6.4% of Bay Effort
- 3.0% of State Effort

These geographic data layers and any associated maps are provided as a public resource. While every reasonable effort is made to ensure the accuracy and completeness of the data, VMRC makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of these data, and it should not be construed or used as a legal description.

Calendar

May
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Legend:
- All State Waters Opened
- Waters east of CBBT
- Bay Closed

Motion to propose a memorandum of understanding (12/6/22):

Fishery agrees to not fish in the state territorial waters inside of the Chesapeake Bay on Sat-Mon of Memorial Day and Labor Day.

Fishery agrees to not fish in the state territorial waters inside of the Chesapeake Bay on July 4th and the federally recognized holiday of the week.

Fishery agrees to not fish in the state territorial waters inside of the Chesapeake Bay on all Saturdays and Sundays between Memorial Day and Labor Day.

The Fishery agrees not to fish within ½ mile of the Chesapeake Bay Bridge Tunnel as a measure of cooperation to minimize user conflicts with the recreational angling community.

The Fishery agrees to work collaboratively with the Governor's office and General Assembly members to address geographic buffer along the densely populated areas of the Eastern Shore of Virginia, in the Chesapeake Bay and the Virginia Beach region.

Motion Made by Mr. Headley, second by Mrs. Kellum. Passed 5-4
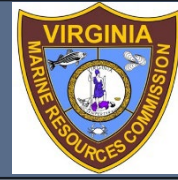
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2023 General Assembly - Menhaden

- HB1381 (Anderson): Eliminate time restrictions on regulations
  - Tabled in Committee

- HB1383 (Anderson): 2-yr moratorium in Bay to study impacts
  - Tabled in Committee

- SB1388 (Lewis): VIMS to study issues and report
  - Passed House & Senate, Governor signed on March 22
  - **Study; Virginia Institute of Marine Science; menhaden; report.** *Directs the Virginia Institute of Marine Science (VIMS) to develop plans for studying the ecology, fishery impacts, and economic importance of menhaden populations in the waters of the Commonwealth and to provide a report on its findings to the Chairmen of the Senate Committee on Agriculture, Conservation and Natural Resources and the House Committee on Agriculture, Chesapeake and Natural Resources and the Secretary of Natural and Historic Resources no later than September 1, 2023.*
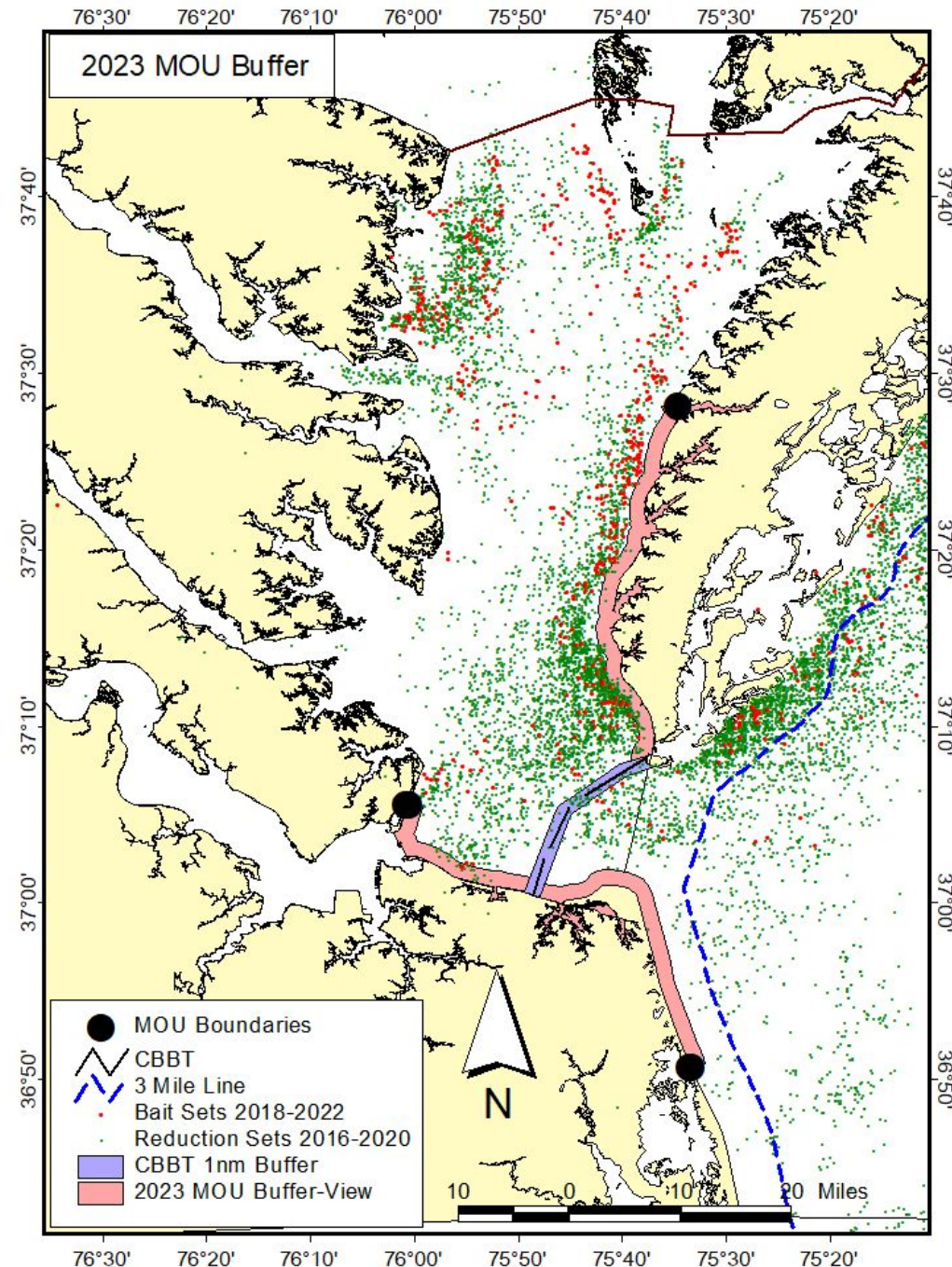
Memorandum of Understanding – April 20, 2023

1) No Fishing in the Chesapeake Bay on Sat-Mon of Memorial Day and Labor Day.

2) No Fishing in the Chesapeake Bay on July 4th and the federally recognized holiday of the week.

3) No Fishing in the Chesapeake Bay on all Saturdays and Sundays between Memorial Day and Labor Day.

4) No Fishing within ½ nautical mile of the Chesapeake Bay Bridge Tunnel.

5) **No Fishing within 1 nautical mile from MLW in the Chesapeake Bay from the north side of Occohannock Creek south to the CBBT. (Eastern Shore)**

6) **No Fishing within 1 nautical mile from MLW in the Chesapeake Bay from the Buckroe Pier (Hampton) south and east to the Sandbridge Pier (VA Beach)**

7) Improved protocols and response to fish spills

- Eastern Shore: Occahannock Creek to CBBT.
  - Displaced Effort: 1.07%, 159 of 14,820 sets

- Western Shore to VA Beach: Buckroe Beach to Sandbridge Fishing Pier
  - Displaced Effort: 0.20%, 30 of 14,820 sets

- CBBT: ½ nm on either side of structure
  - Displaced Effort: 0.38%, 56 of 14,820 sets

- Overall
  - Displaced Effort: 1.65%, 245 of 14,820 sets

- Effort is displaced – not prohibited

Bay Time of Year Restrictions – MOU April 2023

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Legend:
- All State Waters Opened
- Bay Closed- Weekends
- Waters east of CBBT
- Bay Closed-Holidays

Open Season 2023:

Bay: First Monday in May until 3rd Friday in November
        May 1 – Nov 17 (201 days)

Ocean: East of the CBBT
        First Monday in May until Friday prior to Christmas
        May 1 – Dec 22 (236 days)

2023 Bay Closures - MOU
Memorial Day: Saturday through Memorial Day 5/27-29 (N=3)
July 4th: (N=1)
Weekends: Summer - May 6 to Aug 27 (N=32)
Labor Day: Saturday through Labor Day 9/2-9/4 (N=3)

39 Closed Days: 19.4% of 2023 Bay Season will be closed

Overall 0.61% of Bay effort will be displaced

Fish Spill Protocol

- Develop a joint transparent spill response and communications plan to include reporting, logging, and response protocols to reported spills

- Continue to maintain database of all fish spills

- Develop methods to keep future spills from washing ashore
  - Skimmer Vessel
  - Conduct spill simulation exercises
  - Conduct regular purse seine vessel captain and spotter plane captain meetings

QUESTIONS

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OTHER SLIDES

Bay Time of Year Restrictions Holidays – Dec 2022

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Ocean: East of the CBBT
        First Monday in May until Friday prior to Christmas
        May 1 – Dec 22 (236 days)
-
Holiday Closures in the Bay 2023
Memorial Day: Thursday prior through Memorial Day 5/25-29
July 4th: 3 days prior until 3 days after, 7/1-7
Labor Day: Thursday prior through Labor Day 8/31-9/4

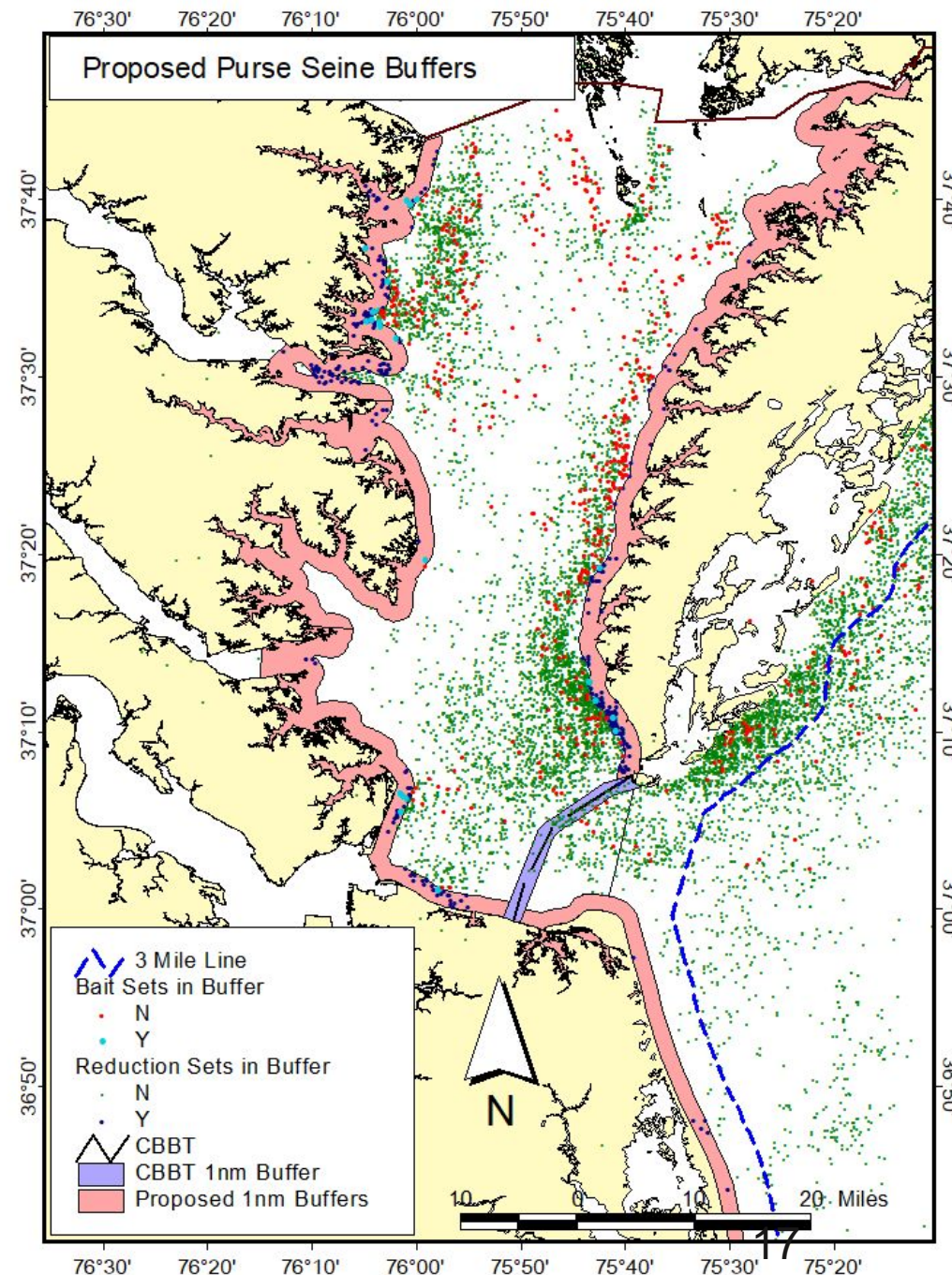17 Closed Days: 8.46% of 2023 Bay Season will be closed

Overall 6.09% of Bay effort will be displaced

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Proposed Buffers – Dec 2022

- 1 nm Buffer along the Coastal Shores of the Chesapeake Bay, Virginia Beach and the CBBT

- Displaced Effort
  - Bay East & West Shore
    - 6.41%, 383 of 5972 sets

  - Overall (Bay, VA Beach, CBBT)
    - 3.01%, 445 of 14,789 sets

- Effort is displaced – not prohibited – fishing can occur elsewhere

Progress Update on Menhaden Ecological Reference Point (ERP) and Single-species Stock Assessments

K. Drew, ASMFC

May 1, 2023

ERP Assessment

- Board to review and approve TORs (this meeting)

- Methods Scoping Webinar
    - → May 23 – 25, 2023

- Data and Methods Workshop (in-person)
    - → Oct. 2-6, 2023

- Press release/call for data and models for submission before Oct. workshop

Single-Species Assessment

- SAS recommends changing the single-species benchmark assessment to an assessment update

Single-Species Assessment

- No changes to the model planned
  - BAM is a solid, well-developed model that has been peer reviewed multiple times (2011, 2015, 2020)
  - No new menhaden data sources identified

- An update reduces the workload for the TC, SAS, Staff, and the Peer Review Panel, and allows more time and energy to be directed towards the ERP assessment

Single-Species Assessment

- The ERP assessment will remain a benchmark

- If problems arise or new data sources are identified that would warrant a benchmark, the single-species assessment can revert to a benchmark and undergo peer review with the ERP assessment

- Single-species model will undergo a full benchmark with the ERP assessment in 2031

QUESTIONS

Terms of Reference (TORs) for the 2025 ASMFC Atlantic Menhaden Ecological Reference Point Benchmark Stock Assessment and Peer-Review

K. Drew, ASMFC

May 1, 2023

Terms of Reference

- TORs for assessment team

- TORs for peer review panel

- Guide development and review of the assessment without being overly prescpritive

1. Review and evaluate the fishery-dependent and fishery-independent data used in the Atlantic menhaden single-species assessment and the single-species assessments of the other major predator and prey species included in the ERP models, and justify inclusion, elimination, or modification of those data sets.

2. Characterize precision and accuracy of additional fishery-dependent and fishery-independent data sets, including diet data, used in the ecological reference point models.

    a. Provide descriptions of each data source (e.g., geographic location, sampling methodology, potential explanation for outlying or anomalous data)

    b. Describe calculation and potential standardization of abundance indices.

    c. Discuss trends and associated estimates of uncertainty (e.g., standard errors)

    d. Justify inclusion or elimination of available data sources.

    e. Discuss the effects of data strengths and weaknesses (e.g., temporal and spatial scale, gear selectivities, ageing accuracy, sample size) on model inputs and outputs.

3. Develop models used to estimate population parameters (e.g., F, biomass, abundance) of Atlantic menhaden that **take into account Atlantic menhaden's role as a forage fish** and analyze model performance.

   a. Briefly describe history of model usage, its theory and framework, and document associated peer-reviewed literature. If using a new model, test using simulated data.

   b. Justify choice of ecological factors (e.g., predator species, other prey species, environmental factors) as appropriate for each model

   c. Describe stability of model (e.g., ability to find a stable solution, invert Hessian)

   d. Justify choice of CVs, effective sample sizes, or likelihood weighting schemes as appropriate for each model.

   e. Perform sensitivity analyses, model diagnostics, and retrospective analyses as appropriate for each model.

   f. Clearly and thoroughly explain model strengths and limitations, including each model's capacity to account for environmental change

4. Develop methods to determine reference points and total allowable catch for Atlantic menhaden **that account for Atlantic menhaden's role as a forage fish.**

5. State assumptions made for all population and reference point models and explain the likely effects of assumption violations on synthesis of input data and model outputs.

6. Characterize uncertainty of model estimates and reference points.

7. Evaluate stock status for Atlantic menhaden from recommended model(s) as related to the respective reference points (if available).

8. Compare trends in population parameters and reference points among proposed modeling approaches, including the results of the single-species benchmark assessment. If outcomes differ, discuss potential causes of observed discrepancies.

9. If a minority report has been filed, explain majority reasoning against adopting approach suggested in that report. The minority report should explain reasoning against adopting approach suggested by the majority.

10. Develop detailed short and long-term prioritized lists of recommendations for future research, data collection, and assessment methodology. Highlight improvements to be made by next benchmark review.

11. Recommend timing of next benchmark assessment and intermediate updates, if necessary relative to biology and current management of the species.

Peer Review TOR 1 & 2

1. **Evaluate** the justification for the inclusion, elimination, or modification of data from the Atlantic menhaden single-species assessment and the single-species assessments of the other major predator and prey species included in the ERP models.

2. **Evaluate** the thoroughness of data collection and the presentation and treatment of additional fishery-dependent and fishery-independent data sets in the assessment, including but not limited to: [...]

3. **Evaluate** the methods and models used to estimate Atlantic menhaden population parameters (e.g., F, biomass, abundance) that take into account Atlantic menhaden's role as a forage fish, including but not limited to:

    a.   Evaluate the choice and justification of the recommended model(s). Was the most appropriate model (or model averaging approach) chosen given available data and life history of the species?

    b.   If multiple models were considered, evaluate the analysts' explanation of any differences in results.

    c.   Evaluate model parameterization and specification as appropriate for each model (e.g., choice of CVs, effective sample sizes, likelihood weighting schemes, calculation/specification of M, stock-recruitment relationship, choice of time-varying parameters, choice of ecological factors).

4. **Evaluate** the methods used to estimate reference points and total allowable catch.

5. **Evaluate** the diagnostic analyses performed as appropriate to each model, including but not limited to:

  a. Sensitivity analyses to determine model stability and potential consequences of major model assumptions

  b. Retrospective analysis

6. **Evaluate** the methods used to characterize uncertainty in estimated parameters. Ensure that the implications of uncertainty in technical conclusions are clearly stated.

7. If a minority report has been filed, **review** minority opinion and any associated analyses. If possible, make recommendation on current or future use of alternative assessment approach presented in minority report.

8. **Recommend** best estimates of stock biomass, abundance, exploitation, and stock status of Atlantic menhaden from the assessment for use in management, if possible, or specify alternative estimation methods.

9. **Review** the research, data collection, and assessment methodology recommendations provided by the TC and **make any additional recommendations** warranted. Clearly prioritize the activities needed to inform and maintain the current assessment, and provide recommendations to improve the reliability of future assessments.

10. **Recommend** timing of the next benchmark assessment and updates, if necessary, relative to the life history and current management of the species.

11. Prepare a peer review panel terms of reference and advisory report summarizing the panel's evaluation of the stock assessment and addressing each peer review term of reference. Develop a list of tasks to be completed following the workshop. Complete and submit the report within 4 weeks of workshop conclusion.

QUESTIONS