The Pew Charitable Trusts · Wild Oceans
Conservation Law Foundation · National Audubon Society
July 13, 2020

The undersigned organizations write in support of the adoption of the example Ecological Reference Points (ERPs) by the Atlantic States Marine Fisheries Commission's (Commission) Menhaden Management Board (Board) and urge you to move forward with the conservative management of menhaden. We thank you for your many years of work to get to this pivotal decision point. If adopted at your August 2020 meeting, ERPs will represent the culmination of decades of work and input by the Commission, scientists, fishing interests, conservation organizations, coastal businesses, and the public. ERPs will set new guideposts to transition from single-species to multi-species management, providing a scientifically sound mechanism to set annual total allowable catches (TACs) that explicitly manage this forage species to protect its vital role in the Atlantic coastal ecosystem. This will be a big step forward to achieving the ASMFC's goal of achieving ecosystem-based management of its fisheries and will ensure there is sufficient forage for wildlife including seabirds, marine mammals, and sea turtles, as well as commercially and recreationally caught fish species.

Adopt the Example ERPs now and manage conservatively to achieve the target. We urge you to adopt the ERP Work Group-recommended and peer-reviewed ERP target of 0.19 and threshold of 0.57. We also encourage you to commit on the record and to the public that the Board intends to conservatively manage to this new *target* reference point, defined as the maximum fishing mortality rate (F) on Atlantic menhaden that sustains striped bass at their biomass target when striped bass are fished at their F target. As striped bass and other menhaden predators, as well as numerous prey species, along the Atlantic coast continue to struggle (see Appendix), managing to the new, more protective ERP target becomes key. Doing so will serve not only to encourage recovery of these species, but can also buffer the negative impacts of swings in menhaden population abundance and recruitment at a time when the ecosystem is rapidly changing. It will have the added benefit of bolstering forage availability for predators that also rely on depleted prey like Atlantic herring (whose 2019 spawning stock biomass is estimated to be at a mere 29% of its target[1]), particularly in New England where older fish return if the population is healthy[2] and hopefully in the South Atlantic where a recovery has not yet happened.

Recent actions have paved the way for immediate ERP adoption. ERPs have been years in the making, but several key steps highlight their importance, appropriateness, and readiness:

- The Board adopted Amendment 3 to the fishery management plan in 2017 with only one dissenting vote.[3] Amendment 3 Section 4.6.2 specifies that new reference points may be adopted through adaptive management and does not require a new amendment or addendum.[4]
- Hundreds of thousands of public comments,[5] including from scientists, fishing interests, coastal businesses, and the public have urged the Board to adopt ERPs to protect menhaden, their predators, and the wider Atlantic marine ecosystem.
- Two benchmark stock assessments, including the Board's first multi-species one, enthusiastically passed peer review in Dec. 2019.[6] The peer review panel agreed that the "… Northwest Atlantic Coastal Shelf Model of Intermediate Complexity for Ecosystems (NWACS-MICE model) is best able to address the full suite of management objectives when combined with [the Beaufort Assessment Model]," and that "[it is] ready to be used to provide management advice."[7] The Board then accepted the assessments for management use.[8]
- The Department of Commerce upheld ASMFC's decision to find Virginia out of compliance,[9] effectively affirming its "… support for the Commission's interstate fisheries management

process and, in particular, [ASMFC's] efforts to manage Atlantic menhaden, an important forage species, in a precautionary manner."[10] Virginia has since come back into compliance.[11]

- At the Board's May 2020 meeting, the Board committed to adopting ERPs in August 2020.[12] The ERP Work Group has now recommended the adoption of the Example ERPs, which represent a straightforward, common-sense balance of multiple objectives for the fishery.

ERPs will be protective of menhaden, striped bass, and other predators. Numerous species of fish, mammals, and seabirds depend on menhaden for high-quality forage. While the example ERPs do not explicitly account for the needs of all of these important predators, they "… would likely not cause additional declines for other predators in the model … [because] Atlantic striped bass was the most sensitive predator fish species to Atlantic menhaden harvest."[13] The models used to generate the example ERPs can be used to add additional species, data, and objectives moving forward.

A large body of science, and many scientists, supports menhaden-specific ERP adoption. NOAA Fisheries' Ecosystem-Based Fisheries Management Road Map[14] urges state and federal managers to "Develop and monitor ecosystem-level reference points," and to "incorporate ecosystem considerations into appropriate … assessments, control rules, and management decisions." A growing list of scientific literature[15] urges fishery managers to use tools like ERPs as precautionary measures to manage forage species differently than predators. The Board considered the use of rule-of-thumb ERPs through Amendment 3, but ultimately decided to pursue the development of models and reference points specific to menhaden, its key predators, and the Atlantic coast. This is in keeping with some recent science that suggests that "… models tailored for individual species and ecosystems are needed to guide fisheries management policy."[16]

The NWACS-MICE model, working in concert with the BAM, is the right tool to use now. The ERP Work Group and stock assessment peer reviewers evaluated the performance of five multi-species models and determined that the NWACS-MICE model is the best one available to use for setting reference points that inform TACs.[17] NWACS-MICE allows the Board to "…explore both the impacts of predators on Atlantic menhaden biomass and the effects of Atlantic menhaden harvest on predator populations, [and] ... could be updated on a timeframe that works for managers." "MICE [models] are context- and question-driven and limit complexity by restricting the focus to those components of the ecosystem needed to address the main effects of the management question under consideration."[18]

Use the new ERPs to set conservative future TACs and continue improving multi-species management. Once adopted in August, the Board must use the new ERPs to set 2021 and out-year TACs. The Board confirmed in May 2020 that this is both possible and necessary. The Board, ERP Work Group, Technical Committee, Advisory Panel, and the wider public must also continue to work to improve how menhaden are managed in the context of their predators, related prey like Atlantic herring, and the ecosystem. We support the research and modeling recommendations of the ERP Work Group,[19] including:

- evaluating other models (e.g., Multi-Species Statistical Catch-At-Age, Stock Synthesis 3) for use in addition to or as a replacement for the NWACS-MICE and/or BAM models;
- incorporating additional species, both predator and prey, into multi-species models and ERP-generation, especially groups found in the model to be sensitive to menhaden abundance (e.g., nearshore piscivorous birds)
- continuing to address uncertainties related to the changing population status of stocks like Atlantic herring and striped bass;

- improving collection of diet data and monitoring of population trends for non-finfish predators (e.g., birds, marine mammals) and data-poor prey species (e.g., bay anchovies, sand eels, benthic invertebrates) to better parameterize the ecosystem models;
- conducting a management-strategy evaluation to identify harvest strategies that will maximize the likelihood of achieving the identified ecosystem management objectives;
- adding additional seasonal and spatial considerations to one or more models; and,
- continuing to review and update data and models, and model outputs, through the stock assessment process.

We greatly appreciate the work of the Board, ERP Work Group, Technical Committee, and ASMFC staff to develop and evaluate multiple multi-species models and develop first-of-their kind ERPs. With adoption of the recommended ERPs, the Board will set a national, even global precedent for how forage fish like menhaden should be managed.

Sincerely,

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APPENDIX. Predators (species at left) depend on a sufficient forage base, especially menhaden, and many iconic species are in trouble. When alternative prey (species at right) are themselves in decline, healthy menhaden populations may buffer against impacts to predators.

Striped bass (assessed in 2018):
Overfished and experiencing overfishing
2017 Female SSB in 2017 was 25% below *threshold*

Atlantic herring (assessed in 2020):
Overfished, not experiencing overfishing
2019 SSB at 29% of the biomass target

Bluefish (assessed in 2019):
Overfished, no overfishing
Stock experienced overfishing in all years back to 1985

Shad (assessed in 2007):
Stocks are currently at all-time lows
and do not appear to be recovering

Weakfish (assessed in 2019):
Depleted since 2003; experiences very high levels of
total mortality preventing the stock from recovering

River herring (assessed in 2017):
Depleted coastwide at near historic lows
and total mortality remains high

Spiny dogfish (assessed in 2018):
No overfishing, Not overfished; Biomass recently
declined, requiring significant catch reductions 2019-20

Atlantic mackerel (assessed in 2017):
Overfished and experiencing overfishing
2016 SSB was estimated to be 22% of the target

Western Atlantic bluefin tuna (assessed in 2017):
No overfishing, overfished status unknown
Recent biomass is estimated at just 18% of historic levels from the 1950s

Atlantic butterfish (assessed in 2020):
No overfishing, Not overfished; Biomass has been declining steadily
because of poor recruitment and is estimated at 69% of target

Image sources: Striped bass, Atlantic herring, Bluefish, Shad, Weakfish, River herring – AMSFC.org; Butterfish, Atlantic mackerel – MAFMC.org; Bluefin tuna – Fisheries.NOAA.gov.

Data sources: Striped bass-ASMFC; Atlantic herring-NEFSC; Bluefish-ASMFC; Shad-ASMFC; Weakfish-ASMFC; River herring-ASMFC; Spiny dogfish-ASMFC; Butterfish-MAFMC; Bluefin tuna-ICCAT; Atlantic mackerel-MAFMC.

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