Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **Horseshoe Crab Management Board**

FROM: **Horseshoe Crab Advisory Panel**

DATE: **November 2, 2026**

SUBJECT: **Advisory Panel Report**

A Horseshoe Crab Advisory Panel (AP) meeting was held on Tuesday, October 20 from 3:00 - 4:30 p.m. The purpose of the meeting was to review model updates to the Adaptive Resource Management (ARM) Framework and provide input to inform the Management Board as it considers potential changes to the ARM Framework.

AP Attendance

Brett Hoffmeister, Chair (MA)	Helen Cheng (MA)	David Meservey (MA)
Nora Blair (SC)	Tim Dillingham (NJ)	Benjie Swan (NJ)
Jennifer Budai (CT)	Glenn Gauvry (DE)	Susan Linder (NJ)
Jane Brockman (FL)	Christina Lecker (VA)	Sam Martin (MD)

The AP reviewed a summary of the recommendations from the engagement process completed earlier this year, and the updates to the ARM model that were developed in response to these recommendations. The information provided to the AP was the same as what was reviewed by the Delaware Bay Ecosystem Technical Committee (DBETC), which is summarized in the DBETC memo to the Board dated October 26, 2026. It was noted that the recently identified error in the model code and the results of correcting the error on model outputs has not been reviewed by the stakeholder group that participated in the 2026 workshop. Stakeholders were invited to attend the AP meeting for an opportunity to review the model changes. The AP was informed that the next step is for the Board to consider initiating an addendum to the Horseshoe Crab Fishery Management Plan to consider implementing the proposed changes to the model. The AP did not provide consensus recommendations related to the proposed model updates, but individual input is summarized here.

Several advisors noted that the current ARM model does not explicitly incorporate changes to habitat, environmental conditions, or bycatch levels and how those factors might impact population projections for horseshoe crabs or red knots. It was noted that while the tools to incorporate these factors into the ARM Framework are not currently available, it would be worthwhile investigating this and the role of habitat restoration on species recovery, possibly through a future stock assessment.

The advisors generally supported the proposed updates to the horseshoe crab and red knot utility functions to reflect stakeholder values elicited during the January 2026 workshop.

Five advisors expressed concerns about the proposed model change to implement a threshold for female horseshoe crab harvest of 7 million females, below which harvest recommendations

would be set to zero. Implementing a user-defined threshold was recommended during the stakeholder process, and the value of 7 million females was based on input from the DBETC and ARM Subcommittees. The primary concern with the threshold was that it is predicted to result in annual bait harvest recommendations for female horseshoe crabs switching back and forth between zero and values near the maximum of 210,000 females, which could create instability for the fishery. Some advisors noted that this pattern is similar to the effect of the "knife-edge" utility function in the original ARM Framework model, which was criticized in the peer review and addressed during the 2021 ARM Revision to allow for more gradual changes in harvest recommendations. It was noted that other options, such as a more gradual increase in female harvest, have been discussed by stakeholders and technical committees, but this was the approach landed on during the recent stakeholder process. ARM modelers indicated that there are mechanisms within the ARM for implementing graduated, or less "on or off", take of female crabs should the overall Bay population drop below the threshold, and this was not relegated to an idea passed over by other parts of the ASMFC process.

One advisor commented that while she understands why a female threshold was suggested, protection of males should also be considered if the population were to fall to low abundances, because there needs to be a higher ratio of males to females for reproductive success. It was noted that this is considered in the model through the recruitment function, which is linked to the ratio of males to females in the population.

One advisor urged the Board to implement the recommendations of the ARM Framework, because if the Board chooses not to implement what the ARM Framework is recommending, it impedes the model predictions and ability to learn. He also stated that it is disappointing to see some groups pushing a narrative that the integrity of the ARM model and management should be questioned while we are making changes to trying to improve it.

An opportunity was provided for attendees from the public to make comments. One member of the public stated that they believed stakeholders would have chosen a different threshold if they had known ahead of time about the error in the model code and what the outcome of correcting it would be for female harvest recommendations. Staff clarified that the threshold value was derived from DBETC input because stakeholders deferred to expert advice on the appropriate threshold.