



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

ASMFC Horseshoe Crab Technical Committee and Horseshoe Crab Delaware Bay Ecosystem Technical Committee Call Summary

Thursday July 28th, 2016

10:00 a.m. – 12:00 p.m.

Attendees: Tiffany Black (FL), Mike Millard (USFWS), Steve Doctor (MD DNR- TC Chair), Adam Kenyon (VA), Jeff Brust (NJ), Rachel Sysak (NY), Derek Perry (MA), Lindsey Aubart (GA), Joanna Berger (Rutgers University), Greg Breese (USFWS- DETC Chair), Jeff Brunson (SC), Audrey DeRose-Wilson (DE), Penny Howell (CT), Scott Olszewski (RI), Eric Hallerman (Virginia Tech University), Chris Wright (NOAA), Wendy Walsh (USFWS)

Staff: Kirby Rootes-Murdy (ASMFC) and Kristen Anstead (ASMFC)

Members of the Public: Dr. Jim Cooper, Benjie Swann, Wally Jenkins, Dave Smith, Jim Lyons

Adaptive Resource Management (ARM) Framework Review and ARM Subcommittee recommendations

a) Overview of ARM Subcommittee's review of the ARM Framework

ASMFC Staff provided an overview of the ARM Subcommittee's review and recommendations regarding the ARM Framework outlined in Addendum VII. Over the last 8 months, the ARM Subcommittee considered, evaluated, and developed recommendations to the ARM Framework in three categories: 1) monitoring programs, 2) harvest rates and specifications, and 3) the ARM objective function. The ARM Subcommittee outlined the following recommendations:

- Continuation of the Virginia Tech University (VT) trawl survey to inform the population abundance estimate for Horseshoe Crabs in the ARM Framework.
 - In the absence of the VT trawl survey, continue with the composite index developed by Sweka et al. in 2015
- Redouble efforts to conduct the annual red knot shorebird mark-recapture survey
- Adjust current harvest packages to account for biomedical bled mortality using a 3 year average morality of bled horseshoe crabs to be revisited every 4-6 years (similar to current review timetable)
- No adjustment to the order of red knot and horseshoe crabs in the objective statement
- Removal of duplicate sex ratio constraint on the utility function
- No adjustment to the (2x) multiplier of utility of female crab harvest in the reward function as it reflects the market value of male to female crabs (2:1 male to female)
- No adjustment to the current knife-edge utility function to a sloped function.

Comments from the Technical Committees on the recommendations

Members of both TCs discussed the options for including biomedical data in the ARM Framework and were unclear as to whether the ARM Subcommittee's preferred option- of including a 3 year average biomedical mortality from the Delaware Bay Region in the ARM Framework and adjusting the current harvest packages- would limit the biomedical industry's collection and bleeding of horseshoe crabs. ASMFC staff outlined that the ARM Subcommittee was working under the impression the Management Board could not limit biomedical collection and bleeding, and therefore, the ARM Subcommittee was not intending for the preferred option to be a cap or limit to the biomedical industry. Rather, the intention was to account for the mortality estimate associated with biomedical bleeding and make it explicit in the ARM Framework. The group then engaged in a larger discussion of what the role of the Board was in limiting the biomedical bleeding of horseshoe crabs. Many of the states' issue biomedical companies a scientific collection permit that specify how horseshoe crabs must be handled and reported to the state, but do not specifically limit the number of horseshoe crabs that can be collected. Scott Olszewski noted that the state of Rhode Island does set an annual quota for the biomedical collection of horseshoe crabs within Rhode Island, but they are currently the only state on the coast that does so. ASMFC Staff reiterated that in spring 2016 all states with biomedical facilities were contacted regarding state confidentiality rules, and that that information was presented to Board, but additional questions regarding limiting biomedical collection were not discussed at that time. Additionally the groups discussed the role of the U.S. Food and Drug Administration (FDA) in managing biomedical facilities, specifically that the FDA certifies facilities and sets standards for the production of Limulus ameobocyte lysate (LAL), but not govern or set production volume requirements (i.e. the amount of LAL needed to be produced). Moving forward, the TCs requested that Board and Commission determine the jurisdiction of the Board regarding the possibility of limiting biomedical collection and harvest.

In further discussing the preferred option for including biomedical mortality, TC members asked about whether any model runs had been conducted to demonstrate what the optimized harvest package would be under either of the options (the preferred or the secondary option of including the 3 year average biomedical mortality from the Delaware Bay Region in the population dynamics model and NOT adjusting the current harvest packages). Jim Lyons and ASMFC staff noted that model runs has not been conducted yet but that the ARM Subcommittee did not want their recommendation to be driven by end results, rather by considering the best ways to improve the ARM Framework's accounting of horseshoe crab mortality in the Delaware Bay Region.

In considering the proposed recommendations of changes to the ARM Framework without the biomedical data inclusion options, the majority of TC members indicated the ARM Subcommittee had conducted a good review and were in agreement with the recommendations. When looking at all of the recommendations including the preferred option for accounting for biomedical bleeding mortality, the majority of TC members were in favor of the preferred option. One TC member stated their preference for the secondary option, for reasons including 1) it would satisfy the need to account for biomedical mortality without changing the current harvest packages 2) the secondary option would not require an addendum to the Horseshoe Crab FMP (which the preferred option does) 3) and that it would account for biomedical mortality in a transparent way without linking the bait and biomedical sectors together through harvest allocation. Another TC member recommended that both options- the preferred option and secondary option- be brought forward to the Board for consideration. Lastly, another TC member offered that if the preferred option were to be selected by the Board, that there should be the consideration of adding a small buffer to 3 year average (possibly 8-15%) to allow for growth in the near

future for the biomedical industry with significant changes being needed during the review process that would take place 4-6 years from now (similar to current review process).

Reasons cited for the preferred option for including biomedical data in the ARM Framework were the following:

- That incorporating the biomedical mortality using a 3 year average for the Delaware Bay Region does not violate fisheries data confidentiality rules.
- The proposed method for incorporating biomedical data makes explicit what the biomedical mortality has been in recent years in a transparent way.
- That the preferred option is the most logical way for including biomedical data into the ARM Framework.

b) Overview of ARM Subcommittee's recommendations for addressing biomedical mortality threshold

ASMFC Staff presented the ARM Subcommittee's 5 recommendations for addressing the exceedance of the biomedical mortality threshold. In considering these recommendations, the TC members were in agreement with ARM Subcommittee on the 5 recommendations, with the one suggested change for item #4 (Urge the industry to fund additional research regarding post-release mortality rates and sublethal effects that could affect populations) was to the first word from "urge" to "require"- many TC members felt that biomedical companies should contribute to the funding of the VT Trawl survey and other horseshoe crab studies moving forward. Additionally ASMFC staff noted that much of requested information included in the ARM Subcommittee's recommendations for addressing the biomedical mortality threshold are already reported annually through the state compliance reports- the one exception being the condition of the animals at release. This would be new qualitative designation for released horseshoe crabs.

Public Comment

Two members of the Horseshoe Crab Advisory Panel (Benjie Swann and Dr. Jim Cooper) provided comments on the TCs discussion. Benjie Swann expressed concern that the preferred option for including biomedical data in the ARM Framework would put a cap on the biomedical industry moving forward. Additionally she expressed concern that the ARM Framework was set up to address bait harvest in the Delaware Bay region and not to account for the biomedical sector. Dr. Jim Cooper expressed concern on the preferred option as well, stating that 15% threshold for biomedical exceedance in the Horseshoe Crab FMP was a 'soft' number rather than a significant threshold. Dr. Cooper offered the Biomedical handling BMPs that were agreed upon in 2011 should be revised, and likely could be within the next two years. And lastly, Dr. Cooper expressed concern that the preferred option for including biomedical mortality information in the ARM Framework would pit the biomedical and bait fisheries against each other, in a new way that may create animosity over harvest allocations.



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ASMFC Horseshoe Crab Advisory Panel Call Summary

Thursday July 28th, 2016

1:00 – 3:30pm

Attendees: Dr. Jim Cooper, Benjie Swann, Allen Burgenson, Brett Hoffmeister, Jay Harrington, John Turner, George Topping, Jeff Eutsler

Staff: Kirby Rootes-Murdy (ASMFC) and Kristen Anstead (ASMFC)

Members of the Public: Jim Lyons (USGS), Mike Millard (USFWS), Steve Doctor (MD DNR), Adam Kenyon (VMRC)

Adaptive Resource Management (ARM) Review and ARM Subcommittee recommendations

a) Overview of ARM Subcommittee's review of the ARM Framework

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Comments from the Advisory Panel on the recommendations

Many members of the AP found that much of the ARM Subcommittee's recommendations on the ARM Framework- with the exception of including biomedical collection data & mortality estimates- were not substantive. In considering the recommendation to include biomedical data into the ARM Framework overall, the AP took issue with the recommendation, as many indicated that the ARM Framework was developed to deal specifically with the horseshoe crab bait fishery, not the biomedical industry. As such,

a majority of the AP members were against the inclusion of biomedical data in the ARM Framework. Regarding the preferred option of the ARM Subcommittee, Horseshoe Crab Technical Committee, and Horseshoe Crab Delaware Bay Ecosystem Technical Committee to include a 3 or 5 year average of biomedical bleeding mortality in the ARM Framework and adjust the harvest packages, all AP members were against this option. Reasons cited included:

- Concern over including an incorrect number of facilities in the Delaware Bay region and inaccuracies in the mortality estimates associated with bleeding activities.
- Concern that the preferred option for including biomedical data in the ARM Framework would bring the two industries- the bait fishery and biomedical bleeding facilities- into direct conflict with each other by linking activities of the biomedical bleeding facilities with the harvest allocation of the bait fishery.
- Concern that bait fishery should not have their harvest allocation reduced due to biomedical activities.
- Mortality estimates associated with bleeding of horseshoe crabs are insignificant relative to the harvest of crabs by the bait fishery.
- Including biomedical information in the ARM Framework models would go against the intention of the ARM Framework as outlined in Addendum VII.
- Concern that neither the preferred option nor the secondary option for including biomedical data has been tested through simulations by the ARM Subcommittee and are therefore not ready for the Board to consider.
- Concern that including biomedical information in the ARM Framework would be the first step in eventually limiting the production of Limulus ameobocyte lysate (LAL).
- Limiting the production of LAL would have significant impacts to both the biomedical community and the broader US Health system.
- The AP has not been provided enough time to comment on recommendations ahead of the ASMFC Board meeting.
- The AP, and more specifically the Biomedical Industry, was not consulted by the ARM Subcommittee in the development of options for including biomedical data in the ARM Framework.

Only one member of the AP was in favor of including the mortality estimate associated with biomedical bleeding in the ARM Framework- specifically, the secondary option of including this information in the

horseshoe crab population dynamics model¹. Lastly, the AP noted that biomedical industry has a good working relationship with the states in which biomedical facilities are located, report out to the states on their activities in a timely and thorough manner, and are interested in continuing a cooperative relationship with the states moving forward. Many AP members noted that moving to include biomedical data in the ARM Framework may undermine the current working relationships.

b) Overview of ARM Subcommittee's recommendations for addressing biomedical mortality threshold

ASMFC Staff presented the ARM Subcommittee's 5 recommendations for addressing the exceedance of the biomedical mortality threshold. The AP took exception to most of the 5 recommendations. Reasons cited against each for the first 4 recommendations are included below:

1. *Incorporate biomedical mortality into the Adaptive Resource Management (ARM) process and methods that are used to set harvest quotas in the Delaware Bay Region.*
 - The majority of the AP were against this options for the reasons listed above.
2. *Require each company to submit confidential data on its own levels of mortality at each stage (capture, transport, holding, bleeding, and condition at release).*
 - The AP indicated that the 4 of the 5 items listed in this recommendation (number captured, transported, holding, bled) are already included in the annual compliance reports that the biomedical facilities and collectors submit to the states. Listing these again is redundant. The AP indicated that 5 item-condition at release- is qualitative assessment, and aside from indicating either 'dead' or 'alive', were unclear on what would be reported out.
3. *Require each company to submit an annual report regarding its specific measures, practices, and safeguards to implement the 2011 Biomedical handling BMPs, and documentation that crabs are being returned to the same waters from which they were collected.*
 - The AP noted that majority of the biomedical bleeding facilities have implemented all of the 2011 biomedical handling BMPs, but that instances where they have not, may be due to the BMP not applicable to their operating process. In noting that most of the BMPs have been implemented, the AP stated that reporting this information out annual would be cumbersome and un-useful.
4. *Urge the industry to fund additional research regarding post-release mortality rates and sublethal effects that could affect populations.*
 - The AP took issue with this recommendation as many felt it left out important funding and work the biomedical industry has contributed to understand horseshoe crabs. Specifically, the biomedical industry helped fund the Virginia Tech Trawl Survey in 2011 and 2012m and obtained matching funding from NFWF, when government funding was no longer available. Most LAL bleeding facilities have taken part in tagging and post-

¹ This AP member was not present for the meeting but submitted their comments in advance.

release mortality studies. The companies have also funded research at universities for many years, most notably at Virginia Tech, regarding Horseshoe Crab populations and bleeding mortality studies. The AP suggested that conservation groups, specifically birding groups, should provide funding support for the Virginia Tech Trawl Survey in the future.

5. *Periodically revisit the Biomedical handling BMPs and update as appropriate, informed by current data and research.*
 - This was the only recommendation that the AP agreed with ARM Subcommittee on. The AP noted that revisiting the 2011 Biomedical Handling BMPs would be pertinent, but that doing so and developing new BMPs may take up to 2 years.