Atlantic States Marine Fisheries Commission

Horseshoe Crab Technical Committee

Call Summary

April 14, 2022
10:00 a.m. – 12:00 p.m.

TC: Jeff Brunson (SC, Chair), Natalie Ameral (RI, Vice Chair), Derek Perry (MA), Catherine Fede (NY), Jordan Zimmerman (DE), Steve Doctor (MD), Adam Kenyon (VA), Jeffrey Dobbs (NC), Chris Wright (NOAA), Joanna Burger (Rutgers)

Public/Other: Wendy Walsh (DBETC Chair), Ben Levitan (Earthjustice), Carol Amato, Jessica Lindgren (Blue Star Strategies), Jessica Ponder, David Mizrahi

Commission Staff: Caitlin Starks

1. **Review Board Task on Biomedical Mortality Threshold and Best Management Practices**

   In October 2021, the Board assigned the following task to the Plan Development Team (PDT): review the threshold for biomedical use to develop biological based options for the threshold and to develop options for action when the threshold is exceeded; also, review the best management practices (BMPs) for handling biomedical catch and suggest options for updating and implementing BMPs. The PDT tasked the Technical Committee with reviewing available information to address this task and recommending potential methods for developing biologically based options for the biomedical mortality threshold. They also requested the TC review the BMPs and recommend any updates.

   To provide context for the TC discussion staff presented background information on the biomedical mortality threshold, available biomedical mortality data, and BMPs. The 1998 Fishery Management Plan established a biomedical crab mortality threshold of 57,000 crabs. If exceeded, the FMP states "the Commission would reevaluate potential restrictions on horseshoe crab harvest by the biomedical industry." With little information provided in the document, the group assumed this 57,000 was derived from a 15% estimate of mortality of the average 200,000-250,000 biomedical crabs collected per year at the time (~37,000) with a 20,000 crab buffer (37,000 + 20,000 = 57, 000). The management threshold has been exceeded in 12 of the last 13 years but the management Board has determined that a management response is not warranted due to relatively low levels of biomedical mortality compared to bait.

   States with biomedical harvest (past and present, varying timeframes) include MA, RI, NY, NJ, DE, MD, VA, and SC. The biomedical mortality rate used in the benchmark assessment was 15% based on a meta-analysis of 12 studies, with a 95% confidence interval of 4%-30%. The proportion of biomedical mortality to total mortality has increased over time, but biomedical remains under 20% of the total coastwide mortality (bait + biomedical). The sum of annual coastwide biomedical mortality and bait harvest has never exceeded the coastwide ASMFC annual bait quota.

Biomedical mortality was incorporated into the Catch Multiple Survey Analysis model that is used to produce horseshoe crab abundance estimates for the Delaware Bay stock. Biomedical losses are therefore accounted for in the revised Adaptive Resource Management framework.

In 2011, an Ad-hoc Work Group formed by the Board produced a document of BMPs for the collection, bleeding, and release of crabs collected for biomedical purposes. These BMPs are recommended but not required by the FMP. The document also recommends dual use of crabs when possible (crabs harvested under a bait permit, "rented" by the biomedical facility, then returned to the bait market).

2. **Discussion on Methods for Biologically Based Biomedical Threshold**

The TC noted that in the 2019 stock assessment coastwide biomedical data (because regional data are confidential) were considered as losses from the Delaware Bay population model. The CMSA was run with and without the biomedical and discard estimates to evaluate the contribution of these other sources of mortality. The levels of biomedical mortality through the terminal year of the assessment (2017) did not have a negative impact on the Delaware Bay stock abundance. Population estimates were largely unaffected by the estimated biomedical or discard numbers. Omitting biomedical harvest resulted in a decrease of fishing mortality (F) by a small number that did not affect stock status. These results indicate that the current biomedical mortality levels are sustainable for the Delaware Bay stock, however, the TC emphasized that the Delaware Bay stock is relatively large compared to the other regional stocks; therefore other regions may be more at risk of impacts from biomedical mortality if they have smaller population sizes.

Another concern raised by the TC was that the proportion of females versus males included in the biomedical mortalities could have an impact. The coastwide data indicate that in recent years more males than females have been bled, but there is no regulation in place regarding the sex ratio of biomedical crabs.

The TC agreed that given the lack of population estimates for the coast and all regions except for the Delaware Bay, establishing a mortality threshold based on biological reference points is not possible on the coastwide level. The only population for which this could be possible is the Delaware Bay. Therefore, the TC recommended running population simulations for the Delaware Bay to quantify risk associated with different levels of biomedical mortality and biomedical sex ratios. This information could be used to evaluate potential biomedical thresholds for the coast using the Delaware Bay population as a proxy, with the caveat that without regional biological reference points or the ability to evaluate region-specific biomedical data due to confidentiality laws, the impact of biomedical mortality will likely vary at the regional and state scales. Staff will work with the Stock Assessment Subcommittee to produce the requested analysis for the TC to review at a future meeting.

The TC also noted the following information:

- Derek Perry noted that MA expects to see an expansion of the biomedical fishery in the near future
- Adam Kenyon noted that VA has permitted a new biomedical facility to bleed crabs, and they are permitted to collect 120,000-180,000 crabs annually.

3. **Discussion on BMPs for Biomedical Crabs**

The TC reviewed the 2011 BMP document. They noted that there are differences in the biomedical permit requirements among the states, and in how the harvesters and biomedical facilities operate (fishing methods, holding, “rent-a-crab” program, etc.). Because of these differences the BMPs are meant to be adaptable to each industry. Some TC members also mentioned that many of the BMPs are difficult to enforce.

One TC member suggested that the seasonality of collections should be considered in the BMPs. In particular, some states restrict collections before June 7th to ensure more spawning occurs while migratory shorebirds are still in the area.

Staff suggested that the TC provide information on their state biomedical permit requirements, as well as any suggested revisions, new research, and research recommendations that could provide information to improve the BMPs. Staff sent a questionnaire to each TC member to collect this information and will present it to the TC at the next meeting.

4. **Other Business**

Moving forward, Natalie Ameral will take on the role as Chair of the TC. At the next meeting the TC will elect a Vice Chair.