Horseshoe Crab Technical Committee Report

June 24, 2011
9:00 a.m. – 1:00 p.m.

The Horseshoe Crab Technical Committee (TC) met on June 24 to review the recent biomedical mortality studies, consider any updates to the estimated biomedical mortality figure (15%), and consider the development of best management practices in the biomedical industry to reduce mortality levels. The TC also reviewed the 2010 Virginia Tech Horseshoe Crab Trawl Survey report and the 2010 Delaware Bay Horseshoe Crab Spawning Survey Report. The meeting was held at the Maryland Inn in Annapolis, Maryland. The following is a report to the Board, in response to their tasking the TC with considering the biomedical questions.

Attendees

Technical Committee Members

Larry DeLancey (SC), Chair
Tiffany Black (FL)
Alicia Nelson (VA)
Jeff Brust (NJ)
Greg Breese (USFWS)
Jordan Zimmerman (DE)
Jim Page (GA)
Stew Michels (DE)
Steve Doctor (MD)
Penny Howell (CT)
Linda Stehlik (NMFS)
Tina Moore (NC)
Vin Malkoski (MA)
Rachel Sysak (NY)
Chip Paterson (MA-Industrial Econ) [via phone]
Danielle Brzezinski (ASMFC), Staff

Invited AP Chair

Michael Dawson (HSC AP, Chair proxy)

Others

Rick Robins (HSC AP)
Allen Burgenson (HSC AP)
Carolina Kennedy (Def. of Wildlife)
Heather Murray (Def. of Wildlife)
Brett Hoffmeister (Assoc. of Cape Cod)
Benjie Swan (HSC AP)

Addressing Biomedical Mortality

The Board tasked the TC with considering the increasing estimated biomedical mortality, including recent studies and best management practices. To address the Board's task, the TC considered past biomedical mortality studies in addition to the recent paper by Leschen and Correia (2010), the response to this paper by Dr. Michael Dawson (2010), updates on mortality studies performed in South Carolina, and the current trend in harvest of crabs for biomedical use.

After considering these sources of data, the TC put forth the following recommendations:

1. *Use an estimated biomedical mortality range of 5-30%*. Currently, post-bleeding mortality is estimated at 15% of crabs bled. The TC felt that a range better encapsulated the reality of biomedical mortality along the coast, which depends upon environmental and handling conditions. This range encompasses the range in mortality seen within the

biomedical mortality studies for both male and female horseshoe crabs. Using a range of mortality also includes the range of uncertainty currently present within the biomedical mortality estimate.

2. *Form an ad-hoc working group to develop a guide to best management practices.* The TC suggests that the working group contain a subset of individuals from the TC, whose states have a biomedical harvest or company within them (MA, RI, NJ, MD, VA, SC), and the biomedical representatives on the Horseshoe Crab Advisory Panel. This document would review practices that work, depending upon the region and conditions, as well as be a forum for developing best management practices. The working group could also identify a list of studies that would be helpful to decreasing the uncertainty level within the biomedical mortality estimate, including temperature effects, male versus female mortality differences, the use of salt ponds or other non-tank holding facilities in long-term studies, and the effects of bleeding on spawning performance.

3. *Encourage states, if possible, to consider increasing the utility of bait crabs by using them also for biomedical bleeding.* The TC noted that about only 10% of bait crabs are also used in the biomedical industry. The TC believes that by increasing this level of bait crab use, the overall levels of mortality of horseshoe crabs along the coast can decrease while maintaining the LAL supply for the biomedical industries. In addition, the level of uncertainty in the biomedical mortality estimate would decrease, as the mortality rate of bait crabs is known (100%). Some suggestions include recommending or requiring that crabs shipped beyond a certain distance for bleeding be used as bait rather than returning the crabs to the water.

4. *Write a letter to the U.S. Food and Drug Administration, explaining the potential need for the biomedical industry to better utilize crabs from the bait industry.* The TC realizes that one barrier to better utilizing the bait crabs will be the FDA licenses for the biomedical companies contains language requiring that biomedical crabs be returned to their waters of origin. Given the technical merits of using bait crabs for biomedical purposes, the TC believed that a letter from the management institution to the FDA would likely assist the process of altering the wording in the licenses.

The TC does not, at this time, recommend any change in the current biomedical mortality threshold, having neither enough evidence to support the current level nor to recommend a different level. The original threshold was set based on the premise behind *de minimis* exemptions for states, assuming that there were minimal impacts on the resource. There was little information on population levels and regional structure of the population available at the time the threshold was recommended for Addendum III. The TC noted that any change in the threshold value should be considered in relation to the impact of that mortality level on the coastwide population and using new information on stock status and regional subpopulations.

Delaware Bay Horseshoe Crab Spawning Survey, 2010

The TC noted the increase in spawning male horseshoe crabs and no significant change in spawning female numbers. Stew Michels noted the potential mismatch in timing of the survey, which occurs in May and June, and the past year's spawning, which likely began in April. The

dependence of the survey on volunteers, however, precludes such potentially large changes in execution of the survey.

Virginia Tech Horseshoe Crab Trawl Survey, 2010

Rick Robins, a member of the Horseshoe Crab Advisory Panel, brought up the concern that the current survey does not estimate catchability, which leads to increased uncertainty and variability in population estimates. The TC considered this need, along with some other questions on consistency of the report and the input needs for the Adaptive Resource Management model (ARM). The TC recommends that the Board consider requesting the Stock Assessment Subcommittee work with the Virginia Tech researchers to review the survey design and work on ways to address any concerns.