



# HORSESHOE CRAB RECOVERY COALITION

Caitlin Starks, Senior FMP Coordinator

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RE: Comment on Horseshoe Crab Draft Addendum VIII

September 28, 2022

Dear Ms. Starks:

As members of the Horseshoe Crab Recovery Coalition, a diverse group of nearly 50 conservation organizations dedicated to ensuring the future of the American horseshoe crab, we vigorously oppose the Atlantic States Marine Fisheries Commission's (ASMFC) proposed Addendum VIII Interstate Horseshoe Crab Fishery Management Plan, which would increase the number of horseshoe crabs harvested for use as bait and potentially reopen the harvest to include female horseshoe crabs.

While the decline in horseshoe crab populations is problematic throughout the Atlantic Coast, further creating concern over cumulative impacts to the species, it is especially concerning along Delaware Bay, given its importance as a horseshoe crab spawning area and a critical stopover for migrating red knots, a Federally threatened shorebird. Several indicators show that both horseshoe crab populations and the population of red knots, that depend on their eggs as a source of food, are well below recovery thresholds.

Therefore, we urge the commissioners to vote no on Addendum VIII.

We base our opposition on three factors:

- We have yet to see the model upon which the proposed revision is based, so there is no way of objectively verifying its accuracy.
- Horseshoe crab populations remain at historic lows, and their ongoing use both for bait and biomedical purposes all but ensures they will not recover to their historic population levels.
- *Rufa* red knot populations are at all-time lows from both a changing climate and the increasing scarcity of the food needed to fuel their 9,000-mile migration.

Among the most worrisome aspects of the proposed addendum is that the public has yet to see the model upon which it is based. Even if granted access at this late date, we do not believe the September 30, 2022, comment deadline would be sufficient time to independently analyze its accuracy. Such a release would serve the interests of science and spur important public debate about your proposed actions and should have been a prerequisite for ensuring fully informed public commenting.

We are also highly concerned that the proposed revision would likely trigger a resumption in the harvest of female horseshoe crabs, which would make recovery of the species virtually impossible. Under the current ASMFC framework, there is no female crab harvest until female abundance reaches 11.2 million crabs or until the Delaware Bay total red knot stopover population reaches 81,900 birds. Neither red knot nor horseshoe crab populations are anywhere close to satisfying either metric, or yet, under this addendum, female harvest could be allowed.

Based on ongoing field work, including egg density studies conducted by the Delaware Bay Shorebird Project and other organizations, we do not see signs that horseshoe crab populations are recovering from their crash in the 1990s (Smith et al. *in press*). The coalition believes that egg density data is the most reliable indicator of the horseshoe crab population, and importantly, is the most reliable index of value for red knots and other shorebirds. Yet ASMFC has never included these surveys in its modeling.

In addition, ASMFC does not include field survey data for red knots, and these data show that red knot populations are at population levels well below the thresholds that led them to being listed as threatened under the Endangered Species Act. In the 1990s, more than 90,000 could be found along Delaware Bay. This year, only 12,000 were counted along the bay, and in 2021, the number was estimated at an all-time low of 6,800. Evidence is now emerging that red knots are stopping in Delaware Bay for shorter periods (Lyons 2022) or could be bypassing the Delaware Bay stopover altogether in search of life-sustaining food sources elsewhere. This could have far-reaching effects on breeding success and survival (Duijns et al. 2017).

The relationship between horseshoe crab egg availability, red knot feeding behavior, mass gain and overall fitness is clear. During the Delaware Bay stopover period, red knots track horseshoe crab egg availability on sandy beaches bay wide and little in the way of alternative food resources are available (Botton et al. 1994, Karpanty et al. 2006). Importantly, alternative food resources available during the Delaware Bay stopover (e.g., blue mussels, coquina clams) do not provide the necessary nutritional substrates that support rapid and significant mass gain (Haramis et al. 2007). Importantly, red knots departing from Delaware Bay in higher relative body condition migrated south up to a month later than individuals in lower condition,

suggesting that the former were more likely to have bred successfully (Duijns et al. 2017). Moreover, individuals leaving Delaware Bay with a lower relative body condition had a lower probability of being detected in autumn, suggesting greater mortality compared to individuals with higher relative body condition (Duijns et al. 2017).

Many of our conservation organizations have sounded the alarm about the global diversity crisis and the specific threats facing shorebird populations, which have plummeted more than 70 percent over the past 50 years. Their declines represent the world's number one conservation crisis facing birds today. Allowing the killing of female horseshoe crabs at this critical moment all but assures that the population of shorebirds like the red knot will never recover.

The joint collapse of red knots and horseshoe crabs is not inevitable. But the draft addendum propels them closer to that grim reality. We urge you to abandon this scientifically unsupported proposal by voting no on Addendum VIII, and instead urge you to begin the process anew by:

- Incorporating into the model datasets that show a more robust picture of population status for horseshoe crabs and red knots, including horseshoe crab egg density surveys and red knot field surveys.
- Publicly sharing the model behind the proposal, allowing for sufficient time for independent analysis before public commenting.

Respectfully signed by members and friends of the Horseshoe Crab Recovery Coalition,

American Littoral Society  
Audubon Mid-Atlantic  
Audubon South Carolina  
Center for Biological Diversity  
Charleston Audubon and Natural History Society  
Defenders of Wildlife  
Delaware Audubon  
Delaware Riverkeeper Network  
Forest Keeper  
Georgia Audubon  
Humane Society International  
Jenkinson's Aquarium  
League of Women Voters of New Jersey  
Maryland Bird Conservation Partnership  
Maryland Ornithological Society  
Mass Audubon

National Audubon  
National Wildlife Federation  
North Carolina Wildlife Federation  
New Jersey Audubon  
Revive and Restore  
Save Coastal Wildlife  
South Carolina Wildlife Federation  
Southeastern Massachusetts Pine Barrens Alliance  
The Humane Society of the United States  
The Safina Center  
Wildlife Restoration Partnerships

Smith, J., A. Dey, K. Williams, T. Diehl, S. Feigin, and L. Niles. *In press*. Horseshoe crab egg availability for shorebirds in the Delaware Bay: dramatic reduction after unregulated horseshoe crab harvest and limited recovery after 20 years of management. *Aquatic Conservation: Marine and Freshwater Ecosystems*.

Duijns, S, L.J. Niles, A, Dey, Y. Aubry, C. Friis, S. Koch, A.M. Anderson, and P.A. Smith. 2017. Body condition explains migratory performance of a long-distance migrant. *Proceedings of the Royal Society B* 284: 20171374. <http://dx.doi.org/10.1098/rspb.2017.1374>.

Harramis, G.M., W.A. Link, P.C. Osenton, D.B. Carter, R.G. Weber, N.A. Clark, M.A. Teece and D. S. Mizrahi. 2007. Stable isotope and pen feeding trial studies confirm the value of horseshoe crab *Limulus polyphemus* eggs to spring migrant shorebirds in Delaware Bay. *Journal of Avian Biology*. 38: 367376. doi: 10.1111/j.2007.0908-8857.03898.x.

Karpanty, S.M., J.D. Fraser, J. Berkson, L.J. Niles, A. Dey and E.P. Smith. 2006. Horseshoe crab eggs determine Red Knot distribution in Delaware Bay. *Journal of Wildlife Management* 70:1704-1710.

Botton, M.L., R.E. Loveland and T.R. Jacobsen. 1994. Site selection by migratory shorebirds in Delaware Bay and its relationship to beach characteristics and abundance of horseshoe crab (*Limulus polyphemus*) eggs.