



P.O. Box 1770
Manomet, MA 02345 USA
508.224.6521
manomet.org

October 21, 2025

House Chair Christine Barber
Joint Committee on Environment and Natural Resources
ATTN: Jacob Newman
24 Beacon St. Room 167
Boston, MA 02133

Re: H. 898: AN ACT TO END THE TAKING OF HORSESHOE CRABS FOR BAIT

Dear Members of the Joint Committee on Environment and Natural Resources:

On behalf of Manomet Conservation Sciences, thank you for the opportunity to comment on the proposed **H. 898, An Act to End the Taking of Horseshoe Crabs for Bait.**

Manomet's primary interest in encouraging recovery-focused horseshoe crab management in Massachusetts is to fortify the strong link between horseshoe crab eggs and the shorebirds that eat those eggs during energy-demanding migrations.

Most shorebird populations are in decline throughout the Western Hemisphere, with accelerating losses in recent years¹. Manomet is working with partners throughout the Americas to reverse these negative trends. Many shorebirds are long-distance migrants that travel annually thousands of miles between their Arctic or boreal breeding grounds and southern wintering grounds. To complete these extensive journeys, they rely on a network of stopover sites where they rest and feed along the way. Shorebird survival depends on access to these high-quality sites where they can effectively refuel during migration. Massachusetts serves as a stopover site for over 30 species of shorebird, including the state and federally threatened Red Knot (*Calidris canutus rufa*), the Ruddy Turnstone (*Arenaria interpres*) an "at-risk" species with an estimated seventy-six percent decline since 1980, and Hudsonian Whimbrel (*Numenius hudsonicus*) with an estimated seventy-eight percent decline in the same period¹.

Horseshoe crab eggs are an important food source for shorebirds that stopover at horseshoe crab spawning sites along the Atlantic coast. The International Union for Conservation (IUCN) lists American Horseshoe Crabs as vulnerable, primarily due to

¹ Smith, P. A., A. C. Smith, B. Andres, C. M. Francis, B. Harrington, C. Friis, R. I. G. Morrison, J. Paquet, B. Winn, and S. Brown (2023). Accelerating declines of North America's shorebirds signal the need for urgent conservation action. *Ornithological Applications* 125:1-14. <https://academic.oup.com/condor/article/125/2/duad003/7031074>



habitat loss and overharvest². The IUCN also found that horseshoe crab declines have compromised their ecological functionality (e.g., ability to serve as a food source for other organisms) in southern New England³, where they are subject to harvest for the bait and biomedical industries.

Research has shown that the overharvest of crabs reduces the number of eggs available to migrating shorebirds, potentially influencing migration readiness, fecundity, and survival of individual birds⁴. We believe that restoring horseshoe crab populations in areas where their spawning sites and shorebird stopovers overlap is a prudent and risk-averse measure to help improve food resource availability for these rapidly declining shorebird populations.

Manomet biologists have been researching the importance of horseshoe crab eggs as a food resource for shorebirds stopping over on Cape Cod. These studies⁵ focus on several conservation priority species found in Massachusetts, such as the Red Knot and Ruddy Turnstone (*Arenaria interpres*). Our findings include:

1. **Evidence of shorebirds eating horseshoe crab eggs on Cape Cod:** Since 2022, we have observed and documented shorebirds feeding on horseshoe crab eggs at Monomoy National Wildlife Refuge (NWR) during both spring and fall shorebird migration surveys. (Figure 1 and 2).
2. **Relative abundance of spawning horseshoe crabs:** We have conducted aerial surveys of the South Shore and Cape Cod for spawning horseshoe crabs in May 2024 and 2025 and results show that areas with horseshoe crab harvest bans in place, such as Monomoy NWR, have the greatest abundance of crabs. This demonstrates the capacity for the species to recover if given the opportunity in areas experiencing harvest pressure (Figure 3), compared to what we have found on other beaches with historically less protections (Figures 4 and 5).
3. **Reliance on horseshoe crab eggs by declining shorebirds:** We conducted a study that utilized environmental DNA (eDNA) metabarcoding techniques to

² Smith, D.R., Beekey, M.A., Brockmann, H.J., King, T.L., Millard, M.J. & Zaldívar-Rae, J.A. 2016. *Limulus polyphemus*. The IUCN Red List of Threatened Species 2016: e.T11987A80159830. <https://www.iucnredlist.org/species/11987/80159830>. Accessed on 14 April 2025.

³ Smith, D.R., Brockmann, H.J., Carmichael, R., Hallerman, E., Watson, W. & Zaldívar-Rae, J.A. 2022. *Limulus polyphemus* (Green Status assessment). The IUCN Red List of Threatened Species 2022: e.T11987A1198720251. www.iucnredlist.org/species/11987/80159830#green-assessment-information. Accessed on 14 April 2025.

⁴ Krisfalusi-Gannon, J., W. Ali, K. Dellinger, L. Robertson, T. E. Brady, M. K. M. Goddard, R. Tinker-Kulberg, C. L. Kepley, and A. L. Dellinger (2018). The Role of Horseshoe Crabs in the Biomedical Industry and Recent Trends Impacting Species Sustainability. *Frontiers in Marine Science* 5:185. <https://doi.org/10.3389/fmars.2018.00185>

⁵ All Monomoy NWR studies were conducted under U.S. Fish & Wildlife Service (USFWS) Special Use Permits: 53514-24-05, 53514-25-07, 53514-24-03, 53514-25-08



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characterize Red Knot diet at stopover sites within Monomoy NWR and Pleasant Bay during fall 2022 and 2023. Preliminary results showed that Red Knots are using horseshoe crabs as one of their food resources during this time of year.

4. Additional research is underway focused on Ruddy Turnstone and Red Knot diets during spring migration. One component of the study involves tracking birds using satellite transmitters to understand their migration routes once they leave Cape Cod. Preliminary results show that Ruddy Turnstones tagged in spring 2025 performed a direct flight to their Canadian Arctic breeding grounds, roughly 1700 miles, underscoring the importance of their time spent on healthy stopover sites in Massachusetts (Figure 6).

We are committed to conducting robust science in the Commonwealth to fill critical knowledge gaps for shorebird populations that will lead to enhanced conservation efforts and recovery of these species. We are eager to help in any way to continue to fill knowledge gaps that will lead to more effective management of biodiversity for the Commonwealth to reach its aspirational 2030, 2040, and 2050 goals.

We commend the Massachusetts Division of Marine Fisheries (DMF) for their recent decision to ban all harvest of horseshoe crabs during the height of spring spawning season. This was a big step and should help alleviate pressure on survival of egg-bearing females, a sound approach for any fisheries management model. We recognize the challenges of regulating such a data-poor fishery and the considerations that need to be taken for the local fishing community.

The spawning season closure is a solid first step in a longer recovery process to rebuild horseshoe crab stocks back up to ecologically functional levels. Ending the horseshoe crab bait harvest is a logical next step to enable the recovery of horseshoe crabs in Massachusetts and in turn, provide improved availability of food-resources for migrating shorebirds. This prospective boost in coastal biomass would support the state's interest in preserving and bolstering the biodiversity of the Commonwealth.

Thank you for your leadership on this important issue.

Sincerely,

A handwritten signature in cursive script that reads "Elizabeth Schueler".

Elizabeth Schueler
President, Manomet Conservation Sciences

cc: Brad Winn, Alan Kneidel, Liana DiNunzio



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Figure 1. Ruddy Turnstones feeding on horseshoe crab eggs buried in an exposed sandbar. Horseshoe crab egg chamber excavated by Ruddy Turnstones. North Monomoy Island, Barnstable MA. Photos by Brad Winn, Manomet, May 23, 2023. Photos taken under USFWS Special Use Permit.



Figure 2. Hudsonian Godwit (*Limosa haemastica*) fall migration stopover, feeding on horseshoe crab eggs with an attendant Sanderling. Egg visible mid-mandible in photo. Monomoy NWR, Cape Cod MA. Photo by Brad Winn, Manomet, August 5, 2018. Photos taken under USFWS Special Use Permit.



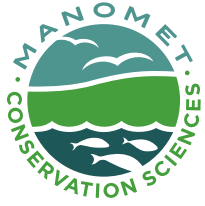
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Figure 3. Over 3,000 horseshoe crabs spawning in Monomoy NWR, an area closed to harvest. This site also supports over 100,000 shorebirds annually and provides the model for horseshoe crab population restoration throughout the state. Photo by Brad Winn, Manomet, May 2024. Photos taken under USFWS Special Use Permit.



Figure 4.



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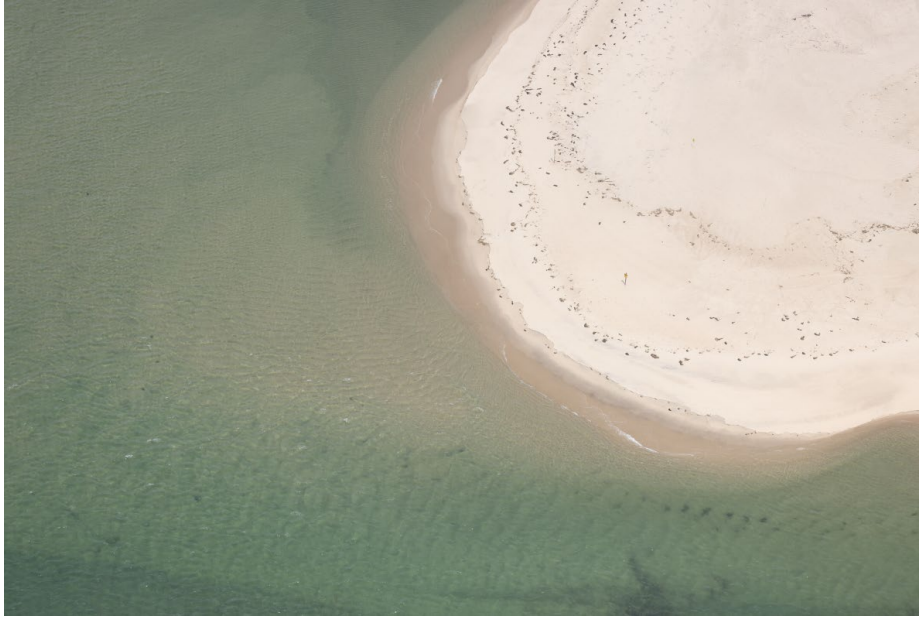


Figure 5.

Figures 4 and 5. Two Cape Cod Bay beaches with what appears to be high quality horseshoe crab spawning habitat in both, but unlike the Monomoy National Wildlife Refuge, devoid of spawning crabs. Photo by Brad Winn, Manomet, May 2024. Photos taken under USNPS Special Use Permit.



Figure 6. Tracking data of Ruddy Turnstones tagged on Cape Cod in Spring 2025. The birds performed a direct flight to their Canadian Arctic breeding grounds, just shy of 2,000 miles, underscoring the importance of their time spent building body reserves on stopover sites in Massachusetts.