



Conserving Massachusetts' Horseshoe Crabs

(Limulus polyphemus)

The Massachusetts Horseshoe Crab Collaborative

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Massachusetts Horseshoe Crab Conservation Initiative

DRAFT The Massachusetts Horseshoe Crab Collaborative (or other name) is a network of people and organizations throughout the Commonwealth dedicated to the restoration of horseshoe crabs to Massachusetts' beaches in numbers reflect its historic abundance and that support a measurable increase in shorebirds and other species dependent upon them for food. The Collaborative has identified four primary areas of focus:

- Education and outreach
- Monitoring and research
- Habitat restoration
- Advocacy

The Collaborative is an active member in the Horseshoe Crab Recovery Coalition and advocates before state and federal agencies for the conservation of horseshoe crabs.

Overview

DRAFT Horseshoe crabs were once a “dominant” species on Massachusetts beaches and estuaries, providing essential food for many marine organisms, including the federally listed loggerhead sea turtle (*Caretta caretta*). At least 10 species of shorebirds also depend on horseshoe crab eggs for food, including the federally and state threatened red knot (*Calidris canutus*). Horseshoe crab population data before the 1970s does not exist, however evidence of their superabundance is evident in the records of bounty payments made by many seaside communities to rid the beaches of horseshoe crabs.

Today, declines in Horseshoe crabs are largely due to overfishing and habitat loss. Yet, the Massachusetts Division of Marine Fisheries (MDMF) in 2021 allowed the take of 165,000 horseshoe crabs for bait, the third largest bait harvest of the Atlantic states. Horseshoe crabs reach sexual maturity at 10 to 12 years of age and are typically harvested near beaches during spawning season. Lobsters, by comparison, mature in 6 to 8 years, and regulations prevent the harvest of large females bearing a V-shaped notch in the right flipper, an indicator of their large egg-bearing capacity. The Collaborative is advocating for an end to the harvest of horseshoe crabs for bait.

Horseshoe crab blood contains the only naturally occurring source of limulus amebocyte lysate, a substance that can detect endotoxins produced by certain bacteria. Horseshoe crabs are caught, bled by biomedical labs, and then returned to the sea. The mortality rate in this process is estimated to average about 15%, though studies indicate that the mortality rate may be closer to 30%. Massachusetts is the only state with two biomedical bleeding facilities, yet research is lacking regarding the effects of bleeding on the reproductive capacity of female horseshoe crabs. Biomedical harvest data is held confidential under the “rule of three” law, making it impossible for the public to judge whether the industry is compromising the recovery of horseshoe crabs in Massachusetts.

The MDMF has imposed regulations to limit and control the harvest of horseshoe crabs under the Interstate Fishery Management Plan for Horseshoe Crab since 1998, but after more than twenty years of that management approach, horseshoe crabs continue to decline coastwide, even in those areas closed to horseshoe crab fisheries. The Collaborative is developing a comprehensive state-wide initiative to restore horseshoe crabs in Massachusetts and invite you to get involved.

For more information visit <https://horseshoecrabs.org>.

Mission Statement

DRAFT The Mission of the Massachusetts Horseshoe Crab Collaborative is to restore horseshoe crabs in Massachusetts in numbers closer to their historical levels allowing them to fulfill their ecological role in the marine ecosystem and support a statistically significant increase in the shorebirds and in the many marine species dependent upon them, and thereby, renew the Web of Life at the edge of the sea.

Organizational Structure and Function

The Steering Committee

DRAFT The Steering Committee shall include experts, stakeholders, representatives of organizations and individuals who share a commitment to protecting and increasing horseshoe crab populations in Massachusetts. The Steering Committee shall consist of 12 members who meet regularly to provide guidance and oversight to project coordinators and determine actions to move the Collaboration forward in its mission and objectives.

The Steering Committee may engage in the following activities:

- Build a state-wide coalition of horseshoe crab advocates
- Advocate for initiatives and projects across the wider organization
- Set the strategic direction of projects
- Establish project goals and scope as well as determine how success will be measured
- Assess, approve, or reject project plans and changes to project plans
- Select project managers and experts to support projects
- Identify individuals/groups whose responsibility is performing each action.
- Prioritize and reprioritize project deliverables
- Monitor project processes and plans
- Resolve conflicts between parties
- Devise ideas for strategy and problem solving
- Provide expert input on concerns and issues related to projects
- Develop policies and governance procedures
- Monitor project quality and adjust accordingly
- Evaluate successes, failures, missteps. Use an adaptive approach in which the plan is systematically revisited and refined in a way to keep momentum and attention focused.

Coordinators

DRAFT Collaboration coordinators are selected from among partnering organizations or individuals as appointed by the Steering Committee. The role of the coordinators includes organizing and facilitating activities designated by the Steering Committee. Coordinators' duties may include, but are not limited to, scheduling Steering Committee meetings; recording meeting notes; supporting working groups; and grant development and administration. The coordinators monitor projects and tasks to ensure that short-term objectives are being met to achieve the long-term goals and mission of the Collaborative. At the years' end, coordinators will submit to the Steering Committee a draft report of accomplishments and challenges, and a draft plan of goals for the new year for the Steering Committees' approval.

PROGRAM FOCUS

Education and Outreach

DRAFT The Steering Committee shall appoint an Education and Outreach working group to develop and disseminate educational materials. The Steering Committee will collaborate with the public to organize and attend events that promote the conservation of horseshoe crabs in Massachusetts. Proposed projects include:

- An art exhibit featuring the "Art and Science of Horseshoe Crabs."
- Exploring the state-listing of horseshoe crabs as "species of special concern."
- An awareness campaign targeting state legislators.
- An awareness campaign targeting municipalities and communities.
- Organizing/participating in community events, i.e., Horseshoe Crab Day.
- Generate and issue regular press releases; report to the public and advocates that progress is being made.
- Maintaining a social media campaign (website, Facebook, e-newsletters).
- The designation of horseshoe crabs as the Marine Invertebrate of Massachusetts, "*An Act establishing the official marine invertebrate of the Commonwealth.*"
- An initiative for instituting a horseshoe crab Special License Plate in conjunction with the Massachusetts Registry of Motor Vehicles.

Monitoring and Research

DRAFT The Steering Committee shall appoint a Monitoring and Research Team to develop projects that support horseshoe crab (HC) data collection and increase scientific knowledge by performing the following functions:

- Host forums and workshops for the development of a list of questions and models relevant to horseshoe crab recovery.
- Recruit volunteers to expand data collection on spawning HCs and egg masses. Alternatively, support the MDMF in finding volunteers to staff existing survey teams.
- Identify HC population goals when, if attained, results in a sustainable harvest.
- Identify consultants to determine HC harvest limits to ensure that HC populations can support other species.
- Seek funding and volunteers for science-based programs and projects:
 - research
 - egg cluster counts
 - dedicated trawling surveys
 - conceptual modeling
 - statistical design of surveys

Habitat Restoration

- Assist coastal communities in planning for sea level rise where HC spawn and juveniles develop.
- Facilitate coastal communities in restoring HC habitat.
- Recruit volunteer surveyors to help determine the status of HC statewide.

Advocacy

DRAFT The Steering Committee will strategize ways to promote and enact governmental policy changes beneficial to horseshoe crabs. It will guide the Collaborative in advocacy by providing the information and resources necessary to understanding the need for change and to help individuals advocate for change. The Collaborative may advocate to:

- End the harvest of horseshoe crabs for bait.
- Reduce the harvest of female crabs to ensure that populations are large enough to support the needs of birds and fish that need their eggs to survive.
- Prohibit the harvest of horseshoe crabs during spawning season.
- Establish, monitor, and enforce HC best practices for transport, bleeding and return to wild.
- Promote greater regulatory oversight for LAL producers to minimize HC mortality.
- End Confidentiality laws —require biomedical companies to make data public: number, size and sex of HCs bled, mortality, location of capture, location of release to wild, released for bait.
- Devise limits on the biomedical harvesting of HC to increase populations.
- Regulate holding pens, tanks, ponds. Prohibit holding HCs during spawning season.
- End the Rent-a-Crab program.
- Require commercial fisheries to report bycatch mortality of HCs caught in nets, and trawls.
- Balance appointment of the MDMF Advisory Commission between commercial/recreational interests and scientists/conservationists.

Chief among the Steering Committee's responsibilities, especially at this formative stage, will be the refinement of the list of objectives and activities to a manageable number and the prioritization of the objectives and activities. To that end, it is suggested that one member of each of the focus groups (Education/Outreach, Monitoring/Research, Habitat Restoration, and Advocacy), plus the coordinators, be assigned that duty.