INTERSTATE FISHERIES MANAGEMENT PROGRAM OVERVIEW

Horseshoe Crab



Species Range and Stock Unit
Coastwide (New Hampshire through Florida)

Stock Status
The 2019 Horseshoe Crab Benchmark Stock Assessment evaluated the stock status of the resource by region, and an assessment update was completed in 2024. Regionally, the Delaware Bay and Southeast regions were in good condition, the Northeast was considered neutral, and the New York region remains in poor condition. While the Southeast region stock status remains good, there are some indices that are trending down in recent years and trends in the Southeast should be monitored in addition to those in the New York region, which has not improved substantially since the last assessment. Coastwide, abundance has fluctuated through time with many surveys decreasing after 1998 but increasing in recent years. The coastwide status includes surveys from all regions and indicates a good condition.

In the absence of biological reference points, stock status was based on the percentage of surveys within a region (or coastwide) having a >50% probability of the final year (2022) being below their 1998 levels. "Poor" status was >66% of surveys meeting this criterion, "Good" status was <33% of surveys, and "Neutral" status was 34 – 65% of surveys.

Region	2009 Benchmark	2013 Update	2019 Benchmark	2024 update	2024 Stock Status
Northeast	2 out of 3	5 out of 6	1 out of 2	1 out of 2	Neutral
New York	1 out of 5	3 out of 5	4 out of 4	3 out of 4	Poor
Delaware Bay	5 out of 11	4 out of 11	2 out of 5	0 out of 5	Good
Southeast	0 out of 5	0 out of 2	0 out of 2	0 out of 2	Good
Coastwide	7 out of 24	12 out of 24	7 out of 13	4 out of 13	Good

To date, no overfishing or overfished definitions have been adopted for management use. For the assessment, biological reference points were developed for the Delaware Bay region horseshoe crab population although not endorsed by the Peer Review Panel for use in management. However, given the assessment results of low fishing mortality and relatively high abundance, overfishing and an overfished status are unlikely for female horseshoe crabs in the Delaware Bay region.

Involved States and Jurisdictions
MA, RI, CT, NY, NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS

Active Boards/Committees
Horseshoe Crab Management Board, Horseshoe Crab Technical Committee, Stock Assessment Subcommittee, Delaware Bay Ecosystem Technical Committee, Adaptive Resource

Management (ARM) Subcommittee, Plan Development Team, Plan Review Team, Horseshoe Crab Advisory Panel

Chairs

Board, Chair – Eric Reid (2/2025); Vice-Chair – Carrie Kennedy
Horseshoe Crab Technical Committee, Chair – Ethan Simpson
Delaware Bay Ecosystem Technical Committee, Chair – Wendy Walsh (9/19); Vice-Chair – Vacant
Horseshoe Crab Advisory Panel, Chair – Brett Hoffmeister (1/2021)
Stock Assessment Subcommittee – Vacant
ARM Subcommittee, Chair – John Sweka (9/19); Vice Chair – Jim Lyons

Staff Lead

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Management Plan History

Interstate Fishery Management Plan for Horseshoe Crab (December 1998)
The goal of this Plan is to conserve and protect the horseshoe crab resource to maintain sustainable levels of spawning stock biomass to ensure its continued role in the ecology of the coastal ecosystem, while providing for continued use over time. Specifically, the goal includes management of horseshoe crab populations for continued use by current and future generations of the fishing and non-fishing public, migrating shorebirds, and other dependent fish and wildlife.

Addendum I (April 2000)
Addendum 1 sets forth changes to the harvest level threshold for horseshoe crab bait fisheries pursuant to Section 4.2 of the Fishery Management Plan, and establishes *de minimis* criteria for those states with a limited horseshoe crab bait fishery.

Addendum II (May 2001)
There are no provisions under Addendum I to allow for quota transfers. Therefore, the Horseshoe Crab Management Board approved the development of Addendum II to the HSC FMP to establish a mechanism for the responsible and voluntary transfer of quota between states.

Addendum III (May 2004)
Several new findings surfaced since the Board first took management action in 1998 and again in 2000 and 2001. The U.S. Fish and Wildlife Service's (USFWS) Shorebird Technical Committee completed its report to the Management Board in June 2003, which included conclusions and recommendations for management and research. At its May 2003 meeting, the Horseshoe Crab Technical Committee recognized the need for change to the reporting requirements for biomedical companies and states. It also identified outdated state monitoring requirements and research needs in the FMP. Addendum III places further restriction on the harvest of horseshoe crabs in the Delaware Bay region and revises state monitoring requirements.

Addendum IV (June 2006)

The Addendum is designed to maximize egg availability to migratory shorebirds in the Delaware Bay by prohibiting harvest of horseshoe crab prior to and during the peak spawning season for the crabs as well as the peak feeding period for shorebirds. Specific measures include a delayed, male-only harvest in New Jersey and Delaware, prohibiting the harvest and landing of male and female horseshoe crabs from January 1 through June 7 in the Delaware Bay, and restricting the annual harvest to 100,000 males per state from June 8 through December 31. As with all Commission plans, states can implement more conservative management measures. In the case of New Jersey, it currently maintains a moratorium on the harvest and landing of horseshoe crab. The Addendum also requires a delayed harvest in Maryland, prohibiting horseshoe crab harvest and landings from January 1 through June 7, and prohibits landing of horseshoe crabs in Virginia from waters outside the Bay from January 1 through June 7. No more than forty percent of Virginia's quota may be landed from ocean waters and those landings must be comprised of a minimum male to female ratio of 2:1. Like New Jersey, Maryland also implemented more conservative measures in 2009 to include a minimum male to female ratio of 2:1.

The provisions of this Addendum are limited to New Jersey, Delaware, Maryland, and Virginia. All other jurisdictions remain status quo as defined by the FMP and Addenda.

Addendum V (September 2008)

Addendum V extends the management measures contained in Addendum IV through October 31, 2009. Under Addendum V's adaptive management provision, the Board voted to extend the measures through October 31, 2010.

Addendum VI (August 2010)

Addendum VI extends the provisions of Addendum V through April 30, 2013, while the Adaptive Resource Management (ARM) Framework is further developed and long-term funding is secured to support the horseshoe crab monitoring program that the ARM Framework is dependent upon. The ARM Framework provides the Board with a tool to manage horseshoe crab harvest and explicitly take into account multi-species interactions with shorebirds (mainly the red knot that eats crab eggs).

Addendum VII (February 2012)

Addendum VII implements the ARM Framework for management of horseshoe crabs in the four Delaware Bay states of New Jersey, Delaware, Maryland, and Virginia. The Framework considers the status of both red knots and horseshoe crabs in determining the optimal harvest output of Delaware Bay crabs. Addendum VII includes the formula for allocating those crabs among the four states.

Addendum VIII (November 2022)

Addendum VIII adopts the changes to the ARM Framework as recommended in the peer-reviewed 2021 ARM Framework Revision, and allows its use in setting annual bait harvest specifications for horseshoe crabs of Delaware Bay-origin. The 2021 Revision includes

improvements to the ARM Framework's population models for horseshoe crabs and red knots and incorporates more sources of horseshoe crab removal data, including mortality due to the biomedical industry and commercial discards from other fisheries. The formula for allocating the overall Delaware Bay-origin quota to each state established in Addendum VII is maintained.

Addendum IX (May 2025)
Addendum IX allows for multi-year specifications for male-only harvest of horseshoe crabs of Delaware Bay origin and management of the male harvest limit based on the sex-ratio of spawning horseshoe crabs through 2031. The Addendum responds to recommendations from the Horseshoe Crab Management Objectives Workshop held in July 2024. Addendum IX also reestablishes the season closure prohibiting horseshoe crab harvest and landings from January 1 through June 7 and landing of horseshoe crabs in Virginia from waters outside the Bay from January 1 through June 7. It also clarifies that harvest caps for Maryland and Virginia under Addendum VIII do not apply when male-only harvest is implemented.

Pending Actions
In November 2026, the Board initiated Draft Addendum X to consider changes to the Adaptative Resource Management (ARM) Framework, including modifying the horseshoe crab and red knot utility functions, and adding a minimum population threshold to the female horseshoe crab harvest policy function. The Board will consider the Draft Addendum for public comment in January 2027.

Annual Events
- Compliance reports are due on July 1. The Plan Review Team holds a conference call after the compliance report deadline. Board reviews state compliance.
- The ARM Subcommittee meets annually to run the ARM Model and determine harvest output for the Delaware Bay region for the next fishing year. The Board considers the ARM harvest recommendation and sets specifications for the upcoming year at the ASMFC Annual Meeting. Under Addendum IX, in interim years of multi-year specifications the ARM model will not be used to provide harvest limits, but the Board still reviews annual survey data.
- The Technical Committees meet at least annually to address ongoing management questions and to review the ARM Framework harvest output. The Delaware Bay Ecosystem Technical Committee specifically focuses on the horseshoe crab populations and ecological interactions with shorebirds in the Delaware Bay area.
- The Advisory Panel meets at least once per year to discuss policy or management implementation.
- Spring (late April through mid-June) is usually the field season for horseshoe crabs and shorebirds in the Delaware Bay region.
- The Virginia Tech Horseshoe Crab Trawl Survey occurs in the fall. Funding for the trawl survey was secured through 2027 and the 2026 survey was completed.

Other Items of Interest

- In July 2024, a workshop was held with stakeholders interested in Delaware Bay region horseshoe crab management. Workshop participants represented harvesters and dealers, biomedical industry, environmental NGOs, shorebird and horseshoe crab scientists, and resource managers. The workshop aimed to identify stakeholders' values and concerns regarding the ARM Framework, as well as common ground for management.
- Based on the workshop recommendations, another stakeholder engagement process was conducted to evaluate the reward, utility, and harvest policy (U/R/H) functions of the ARM Framework. The U/R/H functions are mathematical functions within the ARM model that reflect stakeholder priorities. The process was facilitated by Compass Resource Management and convened participants from bait fisheries, biomedical groups, dealers, ecosystem, shorebird, and horseshoe crab conservation groups, and state and federal resource managers for a series of educational meetings and an in-person workshop. The process elicited stakeholder values and perspectives, and produced recommendations for revising the U/R/H functions. The Board tasked the ARM Subcommittee with modeling the recommended changes and running a side-by-side comparison with the current model. The Board initiated Draft Addendum X to consider adopting these changes.
- Recently, the biomedical use of horseshoe crab has been highlighted in the media. There are six biomedical bleeding companies along the Atlantic coast (in MA, NJ, MD, VA, and SC) that collect horseshoe crabs to extract and process their blood. The Board formed a Work Group to review and update the best management practices (BMPs) for handling biomedical collections, which were originally developed in 2011. The BMPs were updated and accepted by the Board in May 2023.
- The ARM Framework depends heavily on adult abundance indices derived from the Virginia Tech Horseshoe Crab Trawl Survey, which was not conducted from 2013-2015 due to a lack of funding. Loss of the survey and its data present challenges for use of the ARM Framework. The survey was conducted from 2016-2026, but the Commission continues to seek long-term funding for this important survey.