

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, finding populations within the Delaware Bay and Southeast regions remaining consistently neutral and good, respectively, through time. The Northeast region population has changed from poor to neutral, while the status of the New York region population has trended downward from good, to neutral, and now to poor.



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 (2017) 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. Based on this criterion, stock status for the Northeast region was neutral; the New York region was poor; the Delaware Bay region was neutral; and the Southeast region was good. 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 neutral trend, likely due to positive and negative trends being combined.

Number of Surveys Below the Index-based 1998 Reference Point in the Terminal (Final) Year of ARIMA Model

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

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 – Justin Davis (11/2022); Vice-Chair – Vacant
Horseshoe Crab Technical Committee, Chair – Jeff Brunson
Delaware Bay Ecosystem Technical Committee, Chair – Wendy Walsh (9/19); Vice-Chair – Henrietta Bellman
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.

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.
- 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 or talks via conference call 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 2021 and the 2021 survey was completed.

Other Items of Interest

- 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 2016-2022, but the Commission continues to seek long-term funding for this important survey.
- There are five biomedical bleeding facilities along the Atlantic coast (MA, MD, VA, and SC) that collect horseshoe crabs to extract and process their blood. Recently, the biomedical use of horseshoe crab has been highlighted in the media. The Board formed a Work Group to review and update the best management practices for handling biomedical collections, which were originally developed in 2011.