



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfmc.org

MEMORANDUM

TO: Horseshoe Crab Management Board

FROM: Horseshoe Crab Adaptive Resource Management (ARM) Subcommittee and Delaware Bay Ecosystem Technical Committee

DATE: October 21, 2022

SUBJECT: Horseshoe Crab Harvest Recommendations Based on the ARM Framework

Background

Addendum VII (2012) established the Adaptive Resource Management (ARM) Framework, which incorporates both red knot and horseshoe crab abundance levels to set harvest levels for horseshoe crabs of Delaware Bay-origin. As part of the routine stock assessment schedule and because the original software used for the Framework is now obsolete and no longer supported, the ARM Framework was revised in 2021. The purpose of revising the ARM Framework was to address previous peer review critiques, include newly available data, and adopt advances in modeling software and optimization approaches. The ARM Revision (2021) was peer reviewed and accepted for management use by the Horseshoe Crab Management Board (Board). The Board initiated Draft Addendum VIII to consider formalizing the use of the ARM Revision for setting harvest specifications for horseshoe crabs of Delaware Bay-origin, and a public comment period occurred in August and September 2022. The Board will consider final action on Draft Addendum VIII at the November 2022 Board meeting.

Under the annual process of the ARM Framework, the ARM Subcommittee recommends harvest specifications for the upcoming year based on the ARM Framework results. The Delaware Bay Ecosystem Technical Committee (DBETC) then reviews the ARM results and recent horseshoe crab and red knot monitoring data to provide a recommendation for harvest specifications to the Board. This year, because the Draft Addendum VIII has not been finalized, the ARM considered harvest specifications generated using the original ARM Framework as well as the 2021 ARM Framework Revision. Two enclosed documents provide the details of the ARM Results and the discussions and recommendations of the ARM Subcommittee and DBETC:

- 1) 2023 Horseshoe Crab Harvest Recommendations Based on Adaptive Resource Management (ARM) Framework and Recent Monitoring Data: Report to the Delaware Bay Ecosystem Technical Committee by the ARM Subcommittee, October 2022
- 2) ARM Subcommittee and DBETC Meeting Summary from October 12, 2022

The key recommendations from the committees are highlighted below.

Committee Recommendations

The consensus recommendation from the DBETC and ARM Subcommittee members is to use the harvest recommendation from the 2021 ARM Revision. Because Draft Addendum VIII contains two options for rounding the harvest output from the ARM to protect confidential data, two possible harvest limits were generated using the revised ARM:

- 1) 475,000 male and 125,000 female horseshoe crabs; or
- 2) 450,000 male and 100,000 female horseshoe crabs

Consistent with the proposed allocation methodology in Draft Addendum VIII, the resulting state allocations of the Delaware Bay origin quota and total state quotas would be one of the two options presented in the table below, depending on the rounding option selected by the Board when final action is taken on Draft Addendum VIII. One committee member felt the quota caps for MD and VA that were established in Addendum VII should be removed.

Additionally, both committees recommend that the Board consider implementing the provision from Addendum VI that was omitted from Addendum VII that prohibits harvest and landings of all horseshoe crabs in New Jersey, Delaware, and Maryland from January 1 through June 7, and also prohibits the landing of horseshoe crabs in Virginia from federal waters from January 1 through June 7. This requirement would offer protection to spawning horseshoe crabs and reduce disturbance to migrating shorebirds foraging on the beaches.

Table 1. Delaware Bay-origin and total horseshoe crab quota for 2023 by state and rounding convention options included in Draft Addendum VIII. Virginia total quota only refers to the amount that can be harvested east of the COLREGS line.

Using sub-option B1 to round down to the nearest 25,000				
State	Delaware Bay Origin Quota		Total Quota	
	Male	Female	Male	Female
Delaware	164,364	43,254	164,364	43,254
New Jersey	164,364	43,254	164,364	43,254
Maryland	126,220	33,215	135,100	35,553
Virginia	20,052	5,277	40,667	20,331
TOTAL	475,000	125,000	504,495	142,390

Using sub-option B2 to round down to the nearest 50,000				
State	Delaware Bay Origin Quota		Total Quota	
	Male	Female	Male	Female
Delaware	155,713	34,603	155,713	34,603
New Jersey	155,713	34,603	155,713	34,603
Maryland	119,578	26,573	139,625	31,028
Virginia	18,996	4,221	40,667	20,331
TOTAL	450,000	100,000	491,718	120,564