

Fishery Management Report No. 32e
of the
Atlantic States Marine Fisheries Commission



**Addendum V to the
Interstate Fishery Management Plan
for Horseshoe Crab**

September 2008

INTRODUCTION

The Horseshoe Crab Management Board approved the Interstate Fishery Management Plan for Horseshoe Crab (FMP) in October 1998. The goal of the FMP includes management of horseshoe crab populations for continued use by: current and future generations of the fishing and non-fishing public, including the biomedical industry, scientific and educational researchers; migratory shorebirds; and, other dependent fish and wildlife, including federally listed sea turtles (ASMFC 1998). Among other things, the FMP maintained controls on the harvest of horseshoe crabs put in place by New Jersey, Delaware, and Maryland prior to the approval of the FMP. These measures were necessary to protect horseshoe crab spawning within and adjacent to the Delaware Bay, which is the epicenter of spawning activity along the Atlantic Coast. However, subsequent increased landings in other states largely negated these conservation efforts.

In April 2000, the Management Board approved Addendum I to the Horseshoe Crab FMP. This Addendum established a coastwide, state-by-state annual quota system to further reduce horseshoe crab landings. Through Addendum I the Board recommended to the federal government the creation of the Carl N. Schuster Jr. Horseshoe Crab Reserve, an area of nearly 1,500 square miles in federal waters off the mouth of Delaware Bay that is closed to horseshoe crab harvest. The Reserve was established in 2000. In May 2001, the Management Board approved Addendum II, which established criteria for voluntary quota transfers between states. The Board approved Addendum III in March 2004 to further restrict harvest in New Jersey, Delaware, and Maryland.

Addendum IV required additional restrictions on the harvest of horseshoe crabs of Delaware Bay origin. Its provisions expire on September 30, 2008. Addendum V extends the provisions of Addendum IV through October 31, 2009. The Addendum also contains an adaptive management provision that allows, through Board vote, the extension of its management measures for an additional one-year period. The statement of the problem and management measures are included in this Addendum.

STATEMENT OF THE PROBLEM

This Addendum responds to public concern regarding the horseshoe crab population and its ecological role in the Delaware Bay. While there are a number of scientific reviews on the status of horseshoe crabs, there is no externally peer-reviewed coastwide estimate of horseshoe crab abundance from the Stock Assessment Subcommittee. The U.S. Fish and Wildlife Service (USFWS) Shorebird Technical Committee has indicated that the red knot, one of many shorebird species that feed upon horseshoe crab eggs, is at low population levels. Red knots have shown no sign of recovery (Niles et al. 2008), despite over a three-fold reduction in horseshoe crab landings since 1998 (Table 1) and signs of horseshoe crab rebuilding in the Delaware Bay region (ASMFC 2008). If recent “levels of annual survival prevail, the population is predicted to approach extremely low numbers by 2010 when the probability of extinction will be correspondingly higher than it is today” (Baker et al. 2004). The USFWS listed the *rufa* subspecies of red knot as a candidate species under the Endangered Species Act. This means that protection under the Act is warranted but is precluded by higher priority species.

Table 1. Reported Horseshoe Crab Landings for Bait

Jurisdiction	RPL	Addendum IV		1998	1999	2000	2001	2002	2003	2004	2005	2006	Preliminary 2007
		Quota ^a	State Quota ^c										
ME	13,500	13,500	-	13,500	1,500	1,391	100	150	98	0	0	0	0
NH	350	350	-	200	350	180	0	120	0	0	0	0	5
MA	440,503	330,377	165,000	400,000	545,715	272,930	134,143	138,613	125,364	69,436	73,740	171,906	150,829
RI	26,053	26,053	14,655	-	26,053	13,809	3,490	3,886	5,824	6,030	8,260	15,274	15,564
CT ^b	64,919	48,689	-	34,583	45,050	15,921	11,508	32,080	13,386	23,788	15,240	25,280	24,761
NY	488,362	366,272	170,000	352,462	394,026	628,442	129,074	177,271	134,264	142,279	155,108	172,381	284,120
NJ	604,049	100,000	0	241,456	297,680	398,629	261,239	281,134	113,940	46,569	87,250	3,444	0
PA ^d	-	0	-	75,000	0	0	0	0	0	0	0	-	-
DE	482,401	100,000	-	479,634	428,980	248,938	244,813	298,318	356,380	127,208	154,269	147,813	76,663
MD	613,225	170,653	-	114,458	134,068	152,275	170,653	278,211	168,865	161,928	169,821	136,733	172,117
PRFC	-	0	-	-	0	0	0	0	0	0	0	0	0
DC	-	0	-	-	0	0	0	0	0	0	0	0	0
VA	203,326	152,495	-	1,015,700	650,640	145,465	48,880	42,954	106,577	94,713	97,957	155,704	79,570
NC	24,036	24,036	-	21,392	28,094	14,973	9,130	12,906	24,367	9,437	7,462	10,331	7,091
SC	-	0	-	-	0	0	0	0	0	0	0	0	0
GA	29,312	29,312	-	-	29,312	0	0	0	0	0	0	0	0
FL	9,455	9,455	-	200	19,446	10,462	0	200	1,628	0	0	469	0
TOTAL	2,999,491	1,371,192		2,748,585	2,600,914	1,903,415	1,013,030	1,265,843	1,050,693	681,388	769,107	839,335	810,720
Pct. Reduction Relative to RPL				8.4	13.3	36.5	66.2	57.8	65.0	77.3	74.4	72.0	73.0
Pct. Reduction Relative to Addendum IV Quota													40.9
^a States that qualify for de minimis status are not required to reduce landings by 25%													
^b CT landings prior to 2000 are estimated based on bait usage in the eel and conch fisheries.													
^c State quotas listed for states that have adopted quotas more restrictive than ASMFC.													
^d Pennsylvania was removed as a member of the Horseshoe Crab Management Board in 2007. It no longer reports landings.													
RPL = Reference Period Landings													

COMMERCIAL FISHERIES MANAGEMENT MEASURES

The provisions of this Addendum are limited to New Jersey, Delaware, Maryland, and Virginia. All other jurisdictions remain status quo with previous requirements established by the FMP and previous Addenda. In accordance with Article IX of the ASMFC Compact, states may implement regulations more restrictive than those required by the Commission. At the time of this Addendum, New Jersey has in place a full moratorium on the harvest of horseshoe crabs for use as bait.

Bait Harvest Level Threshold/Closed Season Combinations

Addendum V prohibits directed harvest and landing of all horseshoe crabs in New Jersey and Delaware from January 1 through June 7, and female horseshoe crabs in New Jersey and Delaware from June 8 through December 31. It also limits New Jersey and Delaware's harvest to 100,000 horseshoe crabs per state per year. These provisions are in place for one year, from November 1, 2008 to October 31, 2009.

Based on tagging release and recapture information from the USFWS tagging database, the Horseshoe Crab Technical Committee and Plan Development Team found that at least a portion of crabs harvested in Maryland and Virginia waters are "crabs of Delaware Bay origin." Crabs tagged in Delaware Bay were recaptured in state waters of New Jersey, Delaware, Maryland, and Virginia from 1999 to 2006.

To provide additional protection to crabs of Delaware Bay origin, Addendum V prohibits directed harvest and landing of horseshoe crabs in Maryland from January 1 through June 7 for one year, from November 1, 2008, to October 31, 2009. It also prohibits the landing of horseshoe crabs in Virginia from federal waters from January 1 through June 7. Addendum V mandates that no more than 40% of Virginia's annual quota may be harvested east of the COLREGS line in ocean waters. It also requires that horseshoe crabs harvested east of the COLREGS line and landed in Virginia must be comprised of a minimum male to female ratio of 2:1. Virginia's provisions are in place for one year, from November 1, 2008, to October 31, 2009.

The Horseshoe Crab Management Board may extend the management measures contained in this Addendum through a Board vote. The measures can be extended for a period of up to one year. The Board can utilize this extension only once.

The provisions of Addendum V will expire on October 31, 2009, unless extended, through Board vote, for another year. The Board may choose to develop another addendum or amendment to the FMP to follow the provisions of Addendum V. If Addendum V expires and the Board does not take management action to follow Addendum V, management measures for New Jersey, Delaware, Maryland, and Virginia revert back to those contained in Addendum III.

COMPLIANCE

Affected states must implement this Addendum no later than the following dates:

- September 1, 2008: States must submit state programs to implement Addendum V, including management and monitoring programs, for approval by the Management Board.
- November 1, 2008: States with approved management and monitoring programs shall begin implementing Addendum V.

LITERATURE CITED

- Atlantic States Marine Fisheries Commission (ASMFC). 1998. Interstate Fishery Management Plan for Horseshoe Crab. FMR No. 32. 58pp.
- Atlantic States Marine Fisheries Commission (ASMFC). 2008. Horseshoe Crab Technical Committee Report, January 17, 2008. 14pp.
- Baker, A.J., P.M. González, T. Piersma, L.J. Niles, I. de Lima Serrano do Nascimento, P.W. Atkinson, N.A. Clark, C.D.T. Minton, M.K. Peck, G. Aarts. 2004. Rapid population decline in red knots: fitness consequences of decreased refuelling rates and late arrival in Delaware Bay. *Proceedings of the Royal Society of London (B)*. 271: 875-882.
- Niles, L.J., H.P. Sitters, A.D. Dey, P.W. Atkinson, A.J. Baker, R. Carmona, K.E. Clark, N.A. Clark, C. Espoz, P.M. Gonzalez, B.A. Harrington, D.E. Hernandez, K.S. Kalasz, R. Matus, C.D.T. Minton, R.I.G. Morrison, M.K. Peck, W. Pitts, R.A. Robinson, and I.L. Serrano. 2008. Update to the Status of the Red Knot *Calidris canutus* in the Western Hemisphere. Unpublished. 14pp.