

**A MID-ATLANTIC STUDY OF THE MOVEMENT PATTERNS
AND POPULATION DISTRIBUTION OF THE AMERICAN
HORSESHOE CRAB (*Limulus polyphemus*)**

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(ABSTRACT)

In conjunction with Cambrex, a biomedical company that utilizes horseshoe crabs for the production of *Limulus* Amoebocyte Lysate (LAL), a study was conducted to investigate movement patterns and population distributions of horseshoe crabs to increase understanding of mid-Atlantic horseshoe crab populations. In addition, areas of the shoreline of Tom's Cove, Assateague Island, Virginia were investigated as possible locations for annual spawning surveys. Twelve thousand five hundred horseshoe crabs were tagged and released in Chincoteague, Virginia and Ocean City, Maryland as part of a movement study; 431 (3.45%) were reported as resights. The mean distance between site of release and site of recapture for all resighted crabs was 68.3 km; maximum distance moved was 493.7 km. During 1999-2004, demographic data were collected from horseshoe crabs harvested in Chincoteague, VA and Ocean City, MD. The proportion of females ($p < 0.0001$) and juveniles ($p < 0.0001$) sampled varied from year-to-year, but no trends were observed. This study also showed that a greater proportion of females were observed in the juvenile cohort sampled compared to the adults sampled ($p < 0.0001$). The spawning survey revealed that spawning activity in Tom's Cove varied between years. On May 30th, 2003, 1,192 horseshoe crabs were observed spawning on the northern shoreline of Tom's Cove. The maximum number of horseshoe crabs observed spawning in the same area in 2004 was 94. This study provides no evidence for isolated subpopulations in Chincoteague, VA or Ocean City, MD. It also shows that horseshoe crab sex and age ratios fluctuate annually, therefore requiring a long time series of data to detect trends.