Horseshoe Crabs are Wanderers

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INTRODUCTION

Delaware Bay: The epicenter of the horseshoe crab population

Delaware Bay is home to the largest population of Atlantic horseshoe crabs (*Limulus polyphemus*). In order to better understand the temporal and spatial movements of this population of horseshoe crabs, Finn-Tech and Limuli Laboratories have sponsored annual tagging studies of adult horseshoe crabs in the Delaware Bay area for over 15 years. Of the approximately 30,400 adult crabs tagged in the bay and along the Atlantic coast from 1986 through 2001, 804 (2.5%) have been recovered (see chart).

Results

Crabs tagged on spawning beaches tend to stay in the region of release for several days but some move up or down the shore on the SAME-SIDE of the bay. Over time, some move to the opposite shore (CROSS-BAY) or leave the bay (OUT-OF-BAY).

Crabs tagged along the Atlantic shelf area may move into the bay (FROM SHELF). Some have come from Staten Island, New York, and Ocean City, Maryland into Delaware Bay, and one traveled from the bay to Cape Henry, Virginia.

The area of Delaware Bay where *Limulus* occurs is 600 square miles. The distance from Staten Island to Cape Henry is about 274 miles. Since horseshoe crabs tend to remain within 10 nautical miles (11.5 statute miles) of the shore, this would mean that the total "wandering" area for this population could be up to 3,150 square miles, which would explain the low recovery rate (2.5%).

The higher incidence of recoveries on the same side of the bay, within days of tagging, is due to the spawning behavior of the crabs and the ease of spotting tagged crabs on the beaches. Recoveries made a year or more after tagging provide more significant migration information as the crabs move across, in, or out of the bay.

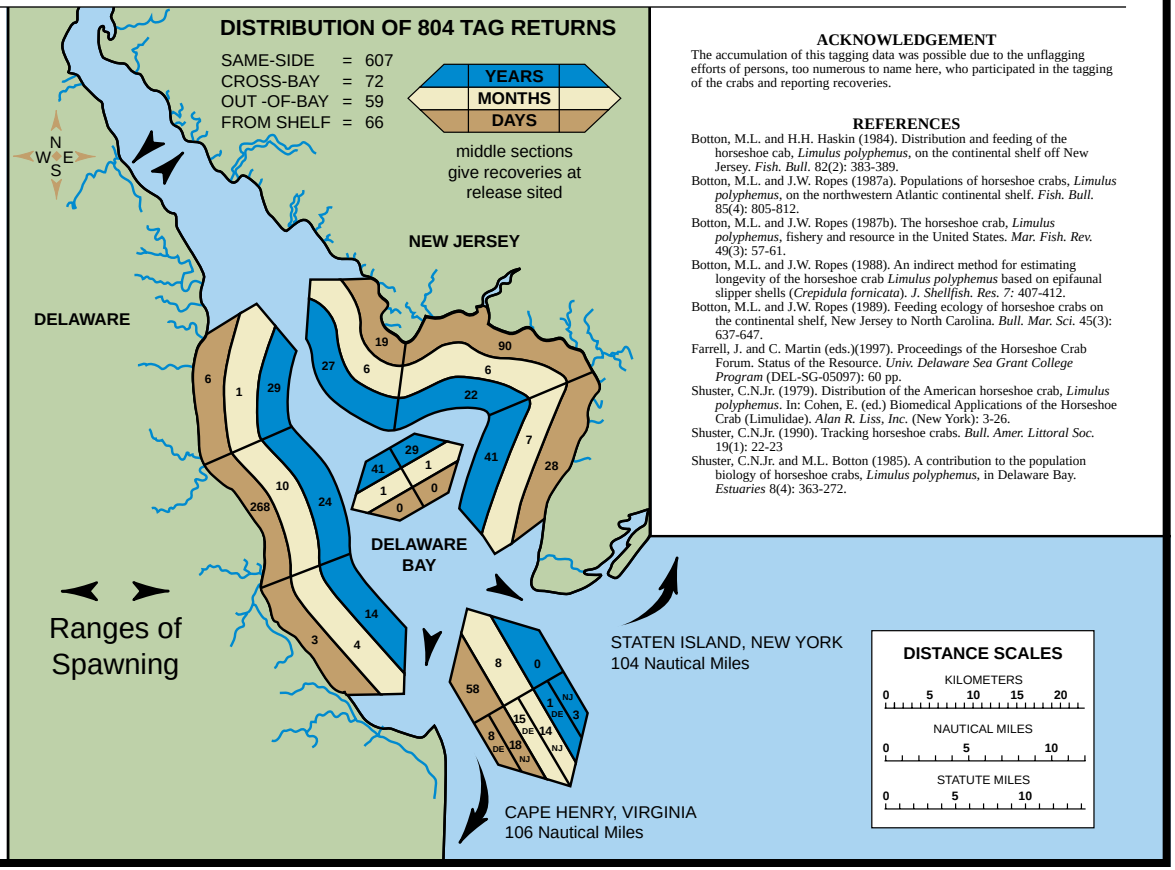
TENTATIVE EXPLANATIONS

In pondering the reasons for the wanderings of horseshoe crabs, not only in the Delaware Bay region but elsewhere, we postulate that the search for food and mates, the size of the population (abundance), and the potential longevity of individuals are the most likely factors driving their peregrinations.

It is common knowledge that adult horseshoe crabs aggregate on beaches to spawn. Our observations indicate that at other times they and the juveniles are concentrated in areas of abundant food resources, particularly on shellfish beds (e.g., soft clams [Mya], blue mussels [Mytillus], and surf clams [Spisula]).

Since the number of horseshoe crabs in the Delaware Bay area is believed to be several million individual animals, and since the range of distribution demonstrated by the tagging studies is from Staten Island to Cape Henry, abundance may be one of the driving forces behind their distribution.

Significant numbers of large juveniles, as well as adults, congregate on the continental shelf off Delaware Bay. This behavior, coupled with the longevity of the species (some ten years to mature and ten years as an adult), would seemingly increase the opportunities for spreading of a population of wanders.



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