

## The Relationship Between Migratory Shorebirds and Delaware Bay Horseshoe Crabs

Recently I took a break from working on my forestry article to prepare a presentation I did for the American Littoral Society, and as you can probably guess it was on the relationship between migratory shorebirds and Horseshoe Crabs! Although it may not be obvious at first not only how reliant some of these shorebirds are on horseshoe crabs, or more importantly why in the first place, it makes a lot of sense after you think about two crucial facts. The first of which being the horseshoe crab spawning season coincides with the spring migration for most (if not all) of our Atlantic Flyway shorebirds, and the second Horseshoe Crabs lay their eggs on the beach!

Every spring from about May-June thousands of Horseshoe Crabs make a moonlit trip out of the Delaware Bay to spawn. Females will lay their eggs about six inches deep in the sand, however inevitably millions (each female will lay about 100,000 eggs per year!) still wash out of the sand and onto the surface. This is where the shorebirds come in. Migrating shorebirds from South America will arrive here on the Delaware Bay to fuel the last stop of their journey to their breeding grounds in the Canadian Arctic right as the Horseshoe Crabs are breeding, and usually they arrive in poor condition. They have just flown across the Atlantic, and quickly need to double their weight (in about two weeks) before taking off on the last part of their grueling migration. Now although it is true they could desperately gouge on their usual food source, (Mussels, Shrimp, etc) to gain an extraordinary amount of weight in such a short amount of time they need an exceptionally rich food source. Just as humans will eat eggs to gain muscle, they take to feasting on the horseshoe crab eggs! So long as there are sufficient numbers of eggs on the beach they will have a good chance of making it to their breeding grounds, as opposed to succumbing to starvation along the way. However in the late 1990s the annual harvest of Horseshoe Crabs for bait soared from about 100,000 every year to 2,000,000. This poor management decision led to a predictable decline in the bay's Horseshoe Crab population, and the birds felt it. Migratory birds such as the Red Knot gain more weight here in the Delaware Bay than in any other spot in the world, and were hit hard by the sharp decline in Horseshoe Crabs. They went from gaining 9 grams of weight each day during their Delaware Bay stopover in the late 1990s (right before the over-harvest), to a record low of 2 grams [a day](#) in 2002. Harvest for Bio-Medicine (which has a 15% mortality rate), bait, hog feed,

fertilizer and eroding beaches/rocky beaches as a result of former housing on the bay have all contributed to not only a 60-70% decrease in the Horseshoe Crabs population, but also a subsequent [90% decrease in egg density](#) on the Delaware Bay

Since then recovery efforts have stabilized the Horseshoe Crab population, and it seems as though they may be starting to re-coup their numbers. One of the most reliant shorebirds on Horseshoe Crabs, the Red Knot, also seems to have stabilized with the crabs, and may even be increasing in population size just as the crabs are.

Right now we need to not only quicken the switch to a synthetic version of the Horseshoe Crabs blood for bio-medicine, but also end the harvest of them for bait if we wish for them to rebound as a whole population. If you [wish to learn more click here](#), as I put a link to the Horseshoe Crab Recovery Coalitions website. I was lucky enough to work with one of their scientists on the bay back in June, and they are very knowledgeable people who are passionate about saving the Horseshoe Crab. Which brings me to my last point; The Horseshoe Crab is a living fossil. It has been around for 450 million years, 200 million years Dinosaurs arrived on the scene, and has since survived 5 mass extinctions. So not only does saving the Horseshoe Crab soothe the moral knowledge of knowing we have done so much damage, as a species, to something that has managed to survive so much, but increasing the Horseshoe Crab's numbers also will be invaluable in recovering (or stopping the decline of) our migratory shorebirds.

So if you want to help Horseshoe Crabs, and therefor migratory shorebirds such as the Red Knot, you can volunteer in a [ReTurn the Favor](#) program on the bay, help clean your local beaches, advocate for a ban on Horseshoe Crab harvesting for bait until the population recovers, and help to restore and prevent erosion at your local bayside beaches.

Thanks for reading!

**Want to learn more about how the Delaware Bay beaches and marshes are being restored? Let me know!**