

Horseshoe Crabs' Decline Further Imperils Shorebirds

Mid-Atlantic States Searching for Ways to Reverse Trend

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SLAUGHTER BEACH, Del. -- As recently as five years ago, this stretch of sand was covered with chirping shorebirds, which depended on Delaware Bay as a critical stopover in their arduous spring migration from Tierra del Fuego to the Arctic. But these days, the beach is almost bare, with just a couple of dozen sanderlings and dunlins digging for the horseshoe crab eggs they need to fuel the trip.

Hundreds of thousands of birds used to stop on Delaware, Maryland and New Jersey beaches for a feast they could not find at other stopovers. Consuming as many as 18,000 pearly blue-green eggs a day, birds such as the tiny, rust-colored red knot doubled in size, from 3.5 ounces to 7 ounces, within two weeks.

Over the past two decades, however, the number of crabs has dwindled as they became attractive to commercial trawlers, who sell the prehistoric creatures as conch and eel bait and for their unique blue blood, which is used medically to detect pathogens. The decrease in spawning crabs, in turn, has contributed to the collapse of bird populations such as that of the tiny rust-colored red knot, which has declined from 100,000 two decades ago to 13,315 last year.

The intertwined fate of Delaware Bay's ancient horseshoe crabs and the red knots is a story of sex, gluttony and death that -- for now -- appears headed for a grim ending. It is also a tale of how quickly an ecosystem can unravel, and how difficult it can be to restore it.

The battle to reverse the trend began in 1998 and will intensify in the coming months as birders seek to place the red knot on the federal endangered species list. Giving it protected status -- the red knot is already considered threatened by New Jersey authorities, but the U.S. Fish and Wildlife Service is still reviewing the case -- could trigger limits on beach access, shoreline development and fishing that could infuriate local commercial interests. Just yesterday, New Jersey officials suspended hand-harvesting of the crabs for two weeks as an emergency measure to try to bolster the birds' food supply.

In an interview, Interior Secretary Gale A. Norton said her deputies are examining whether to take quick action on the red knot, bypassing the department's usual procedures for listing threatened species. It can take 20 years or longer to get a species listed; in this instance federal officials estimate they could make a decision within 18 months.

"We have, on occasion when a species is in a very serious situation, taken some emergency action," Norton said.

New Jersey's and Delaware's top environmental officials said two weeks ago that they plan to ask the administration to list the red knot as an endangered species. John Hughes, who heads Delaware's Department of Environmental Protection, said recent population counts showed "all the evidence of a death spiral" and added: "Without a question, this is a role for the federal government to play, and the sooner the better."

This spring, bird experts from around the globe converged on the bay to try to help save the shorebirds from extinction.

"You don't have international ornithologists coming here because it's the Riviera," said Eric Stiles, vice president for conservation and stewardship at New Jersey Audubon Society. "It's the Riviera of shorebirds -- there's an ecological implosion on this stopover in the Delaware Bay."

Larry Niles, chief biologist for the New Jersey's Department of Environmental Protection's Fish, Game and Wildlife Division, predicts the Western Hemisphere's red knots may go extinct by 2010 if current population trends continue. And other vulnerable species, such as the threatened Atlantic loggerhead turtles that feed on horseshoe crabs during the summer, may also suffer.

All the Delaware Bay shorebird populations are declining, including sanderlings and dunlins, but the red knots are most vulnerable. Unlike other birds, they cannot dig for horseshoe crab eggs, so they need a superabundance to get enough. They also have the longest journey to make each year.

"It's appalling that you would destroy one of the great wildlife spectacles in the world so a few guys could make money scooping up horseshoe crabs for bait," said David S. Wilcove, a professor of ecology and evolutionary biology and public affairs at Princeton University.

Watermen in 15 states along the Atlantic coast, on the other hand, resent the regulators who have limited their horseshoe crab take since 1998. Last year, they landed less than a fourth of the number they took before the state restrictions were imposed.

"It has ruined people's lives," said Frank Eicherly IV, who has spent more than three decades fishing for conch and horseshoe crabs in Delaware. Eicherly has been tracking crabs for the federal government for the past few years, and said he has detected indications that the population is poised for an upswing. "More restrictions is not what we need," he said.

Braddock Spear, who coordinates horseshoe crab management for the Atlantic states, said it would be unfair to make watermen such as Eicherly "take the full burden" for the shorebirds' fate, because regulators have cut their crab catch severely.

For years, people paid little attention to the lowly horseshoe crab, which is related to spiders, not crustaceans, and slithers along beaches from northern Maine to the Yucatan Peninsula and the Gulf of Mexico. Regulators call the species, which dates back at least 200 million years, a "trash fish."

Horseshoe crabs were used as fertilizer and livestock feed until the 1920s but then fell out of commercial favor until the late 1980s, when locals began harvesting them for bait and a source of LAL, a clotting agent that can reveal toxins in medicines and intravenous devices. About 90 percent of the crabs harvested for LAL are returned to the sea after the a portion of their blood is extracted.

Sen. Frank Lautenberg (D-N.J.), who oversees endangered species as a member of the Environment and Public Works Committee, said he is worried about the tourist dollars his state could lose if the shorebirds disappear. Last month, New Jersey officials closed parts of 15 beaches to try to ensure the birds had a decent chance of unearthing horseshoe crab eggs.

Lautenberg said he is trying to persuade his colleagues to pay attention to the red knot's potential demise, but it is hard to get them to focus on an ecosystem's gradual decline: "If it takes place after the next election, in most cases, it doesn't get a lot of attention around here."

Some uncertainty still surrounds the shorebirds' plight, especially since scientists have only recently begun to track the horseshoe crab population. Jim Berkson, a population biologist who helps assess the crabs for state and federal regulators, said as many as 10 million swim in the ocean surrounding Delaware Bay. But a recent trawl survey by Virginia Tech University showed the number of newly matured females, which are crucial in spawning, had dropped by 86 percent between 2001 and 2003.

"They've been fished hard," Berkson said, adding that he is still not convinced crabbing is the "sole or primary factor" explaining the birds' decline.

Regulators' decisions about what to do next are complicated by the uncertainties. Horseshoe crabs take 10 years to reach sexual maturity, and large females make the most desirable bait, so it could take years for the population to rebound despite restrictions. Red knots and other species are also encountering breeding problems, in part because in recent years they have arrived in the Arctic underfed and ill-prepared for the cold.

While some birds have sought food elsewhere -- red knots have stopped off in North Carolina and Florida, for example -- these spots often do not give them the needed sustenance. Perry Plumart, who directs conservation advocacy for the American Bird Conservancy, compared it to "removing the bowl of pasta" from a marathon runner just before a big race.

"This train has been coming down the track for a long time, and regulators said they didn't have enough data," Plumart said, as he looked out at Slaughter Beach. "I've been here when this beach has been crawling with horseshoe crabs, and thousands of birds."