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Delaware environment: A fresh approach to save ancient horseshoe crabs

New restoration effort washes ashore

By MOLLY MURRAY
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Earlier this spring, the beaches of Delaware Bay were loaded with horseshoe crab eggs -- the first evidence that more than a decade of harvest reductions and intensive management may be paying off.

But now the <http://www.asmfc.org/> >Atlantic States Marine Fisheries Commission -- the regional board that oversees horseshoe crab harvests along the Atlantic Coast -- is rethinking how it manages the species.

Rather than using stock assessments and other tried-and-true tools, the commission plans to move forward with a new type of management system that looks at how horseshoe crabs interrelate and impact the health of other species such as shorebirds.

"I've been hoping for this for a number of years now," said Stewart Michels, a <http://www.fw.delaware.gov/Fisheries/Pages/Fisheries.aspx> >Delaware Fisheries Management scientist.

Michels said he hopes that method, called Adaptive Resource Management, will serve as a model for future fisheries restoration efforts. The new proposal also has the support of the <http://www.fws.gov/> >U.S. Fish & Wildlife Service.

The idea, said Greg Breese, a federal fisheries biologist, is to use detailed models that connect changes in horseshoe crab populations to another species that depends on them: shorebirds. Using the models, regulators can quickly adapt to population shifts between the crabs and the birds.

Unlike other fisheries species, horseshoe crabs play a key role in the food web of a non-fishery species. It used to be that an estimated 1 million shorebirds arrived along the Delaware and New Jersey coast in May en route to Arctic breeding grounds.

Many of these species, from red knots and ruddy turnstones to dunlin, time their arrival to coincide with the peak of horseshoe crab spawning. The birds -- many of which arrive thin and

exhausted from their non-stop flight from South America -- feed for about two weeks on the fat-rich horseshoe crab eggs.

The interconnect between species began to unravel in the early 1990s. Fishermen targeted horseshoe crabs as a bait for conch and eel fisheries. The crabs -- which come on shore to spawn -- were easy to collect. Overharvesting was blamed for a dramatic drop in the population. While horseshoe crabs produce lots of eggs, they are slow to mature. Females may take more than a decade to begin spawning.

Meanwhile, scientists started to see a dramatic decline in many of those species -- most notably the red knot.

But from a traditional management point of view, the fisheries regulators weren't accustomed to making harvest rules for one species -- the horseshoe crab -- based on data from another, completely unrelated species.

The key with this new approach, Breese said, it allows rapid change to adjust to population variations and it reduces uncertainty. There are triggers within the model, for instance, that could allow greater harvest of horseshoe crabs but there also are stops that are linked to shorebird populations.

But some conservationists aren't so sure.

All along, said Maya K. van Rossum, the Delaware Riverkeeper and head of the <http://www.delawariverkeeper.org/> Delaware River Keeper Network, the regional fisheries management organization has been biased toward allowing a continued horseshoe crab harvest.

"Rather than risk making averse decisions based on sound science, they have engaged in political calculations and ignored strenuous concerns ... to justify the continuing harvest of horseshoes regardless that we have an entire species of bird on the brink of extinction, at least three others on the path of decline, and a whole ecotourism industry that depends upon sustaining this tremendous ecological phenomenon," she said.

Van Rossum said she worries that they are simply casting aside the process they developed -- a process that included technical and scientific advice from a federal Shorebird Technical Committee -- and starting a new procedure that will allow ongoing harvests and possibly increased harvests.

Earlier this year, the New Jersey Endangered and Nongames Species Advisory Committee questioned the models that will be used to manage the horseshoe crab population.

Among the concerns: The model would use a lower baseline population of shorebirds like the red knot rather than the size of the historic population before numbers began to rapidly decline.

The model, which passed independent peer review, uses 45,000 red knots as an abundance threshold. Historic high populations of red knots likely totaled somewhere around 80,000 birds

before the populations started to decline. Present populations passing through Delaware Bay are estimated around 15,000 birds.

The concern: that the trigger doesn't allow a red knot population recovery.

Like van Rossum, they worried the new system will focus more on the commercial interest of fishermen and less on the recovery of shorebird populations.

Delaware Audubon conservation chairman Nicholas DiPasquale said he had similar concerns.

Even if the horseshoe crab populations are growing, the shorebirds that feed on the eggs are still in trouble. Even with a steady supply of eggs in Delaware Bay, "they are also going to be faced with a lot of other challenges," DiPasquale said.

Among those, he said, are the impacts from pollution, predation and not just the vagaries of weather.

Beyond the concerns over the modeling, the latest proposal also will lead to a complete restructuring of the committees that provide input to the Horseshoe Crab Management Board, the organization within the Atlantic States Commission that makes recommendations on horseshoe crab management.

Gone from the list of long-term advisers will be the U.S. Fish & Wildlife Service's Shorebird Technical Committee. Instead, two new committees will be formed with nominations from Delaware, New Jersey, Maryland, Virginia and New York.

One of the committees -- the Shorebird Advisory Panel -- will include members of the public with an "interest in and firm understanding of shorebird viewing and tourism."

The second group -- including representatives from the same states and three federal agencies -- will focus on horseshoe crab and shorebird biology and also will consider multi-species interaction. It will be called the Delaware Bay Ecosystem Technical Committee.

For Darin Schroeder, vice president for conservation advocacy at the American Bird Conservancy, the latest proposals do little to address the decline in red knot populations.

"Adaptive management is perfectly acceptable. ... It can work," Schroeder said. But he worries that it doesn't go far enough to protect the crabs and the birds.

Schroeder said he believes the ultimate solution will be to have Congress intervene -- as they did with striped bass more than two decades ago -- or to see the red knot listed as an endangered species. The species already is on the U.S. Fish & Wildlife Service candidate list.

The birds, he said, "are on the cusp of extinction ... they live on the very edge of the knife."