State tightens horseshoe crab harvest regulations

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PROVIDENCE – Unassuming brown crustaceans that resemble fossils, horseshoe crabs have been around since the earth was populated by dinosaurs. But in just a few decades, these animals which have existed for 400 million years, are struggling throughout their range.

Until the 1970s, thousands of horseshoe crabs were collected for use as fertilizer. Now, they are harvested for bait, particularly in the whelk fishery, and for the biomedical industry.

Horseshoe crabs' eggs are not only an important part of the diets of sea birds like the Red Knot, the crabs are also critical to human health. The biomedical industry extracts a protein called Limulus Amebocyte Lysate from the crabs' unique blue-colored blood to test vaccines for harmful bacteria.

Rhode Island's horseshoe crab population is not plummeting, it is not increasing, either, so the state is trying to manage the stock to ensure its long term survival, while considering the needs of commercial harvesters.

Following a Dec. 5 hearing that included submissions from the Rhode Island Marine Fisheries Council, scientists, commercial harvesters and Save the Bay, the Rhode Island Department of Environmental Management is expected to approve new amendments to regulations governing the horseshoe crab harvest. The changes will take effect on Jan. 1, 2017.

Scott Olszewski, a supervising marine fisheries biologist with RIDEM's Division of Fish and Wildlife, said that unlike fin fish where catches are reported and monitored, horseshoe crab landings, particularly in the bait fishery, were difficult to track.

"With horseshoe crabs, the harvesters are harvesting crabs to be used in the fishery, so they're really not being sold to a dealer," he said. "They're harvesting and they're bringing them home and they're storing them until they're needed at a later date. Because of that, it's difficult."

One of the amendments will require bait harvesters to report their catches. The catch limit is 60 crabs per person per day. The bait crab harvest quota is small, just 14,466 animals per year.

"We permit all the fisherman that want to harvest horseshoe crabs, and then they're required to report directly to the marine fisheries section here on a weekly basis, and again on a monthly basis," Olszewski explained. "The reason for that is, because it's a small quota and a small allowable catch, we need to be able to monitor the landings more frequently."

The bait fishery will now be closed from May 1 to May 31, the peak of spawning season, when the crabs come into shallow water where they are especially vulnerable.

"We closed down the harvest of horseshoe crabs for two days before and two days after the new and full moon during May, June and July," Olszewski said. " It equated to a 10-day closure per month for those three months. Although it had some impact, from the abundance indices that we monitor, it didn't appear to be rebuilding the population, so that's when the division began to entertain the idea of some modification to our closures, so we sort of made a hybrid management action based on pieces of those different options."

Another new provision calls for a seven-inch size minimum on all harvested crabs. Female horseshoe crabs take up to 10 years to grow to reproductive size.

The biomedical harvest presents its own set of challenges. In Rhode Island, horseshoe crabs are collected and brought to Associates of Woods Hole, the Cape Cod laboratory where they are bled. The crabs are later returned to the ocean, and the state estimates that approximately 15 percent of them die in the process. Transporters of the crabs that have been bled will now be required to notify RIDEM when they leave the laboratory.

“The person who transports the crabs to the biomedical company, they have to be returned to the waters in which they were harvested within 72 hours. That’s the current regulation we have right now. What this additional motion did was force that transporter to call the Department of Environmental Management’s Division of Law Enforcement upon leaving the biomedical facility with the number of crabs, the day the time, and where they are going to be dropped off,” Olszewski said.

The state plans to eliminate the lunar closures in June and July, however, biomedical harvesters will be more closely monitored.

“The applicant for a biomedical permit must present the department with information regarding the dealer that they will be selling their crabs to,” Olszewski said.

Save the Bay supports many of the new provisions, including the 60-crab daily limit, the new minimum harvest size and more reporting by the transporters of biomedical crabs, but the advocacy group also pushed for a longer closure and for biomedical harvesters to report crab mortalities.

Director of Habitat Restoration, Wenley Ferguson, said warming seawater is prompting the crabs to spawn earlier, so Save the Bay had pushed for a longer closure, from April 15 to May 31.

“Spawning can occur in April,” she said. “There is some research that shows that spawning can be triggered not just by the tides but also by warmer water. When the water’s warm enough, they’ll come in and start to spawn...Protecting them during the early spawning period is really important.”

Save the Bay also pointed to uncertainty regarding how crabs that have been bled in the laboratory recover and how long it takes.

“Clearly, DEM is trying to get a better handle on the effects of the biomed fishery on the returning crab, and so is the Atlantic States Marine Fisheries Council – looking at how the bleeding process affects their behavior. Do they spawn again? That’s one of the concerns. If you’re collecting the crabs within that spawning period and they are being bled, will they come back alive, and if they aren’t allowed to spawn, that’s an issue, especially with a species like horseshoe crabs that takes so long to reach reproductive maturity.”

However, Ferguson said overall, the new provisions would be beneficial.

“We’re definitely more encouraged, because there’s been a lot of good dialogue back and forth during the development of these regulations, not only with DEM but with the horseshoe crab fishermen who were in attendance,” she said.“To see the horseshoe crabs spawning, and to realize that they’ve been on this earth through that many years, through all the changes in the earth’s climate and the oceans, and they are still existing, and then we’re seeing a decline in their population basically from the ‘70s on, and the biomed and fishery pressure increased.”

Olszewski disagreed that the population was in decline but he conceded that the more stringent provisions were necessary.

“They’re at low levels of abundance, a relatively stable trend,” he said. “So there’s no increasing trend in abundance, and that’s reason for concern, but I wouldn’t consider the population to really be in decline. It’s just at low levels of abundance, and that’s been shown both through a regional stock assessment and through our local stock assessment. We are constraining harvest. The question is whether it’s enough to rebuild the stock.”