



Horseshoe crabs thriving in Outer Cape salt pond

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NORTH TRURO — The ancient, delicate and crusty horseshoe crab, with ancestors older than dinosaurs, has decided to make a home on the shores of East Harbor, where federal protections can provide a refuge from humans.

Evidence of the heavily armored crab, in the form of pale molted shells stuck in mud and reeds on the water's edge, began appearing about two years ago in East Harbor and exploded to "thousands" last year, according to Cape Cod National Seashore plant ecologist Stephen Smith.

Those empty, fragile shells are a positive sign for scientists that the harbor is returning to the saltwater marsh and lagoon it was in the early 1800s. The crab shells also show that the horseshoe crabs, made scarce in several areas along the Atlantic coast by harvesting and property development, have found a place to live protected from human harm.

The horseshoe crab is an important source of food for shorebirds from South America to the Arctic Circle.

"They're returning," said Robert Prescott of the Mass Audubon Wellfleet Bay Wildlife Sanctuary, referring to the crabs' likely presence in East Harbor, also known as Pilgrim Lake, close to 150 years ago.

The East Harbor lagoon and salt marsh, about 720 acres in total that runs along Route 6, were deliberately cut off from Cape Cod Bay in 1868, creating a murky, stagnant freshwater lake plagued by fish kills, midge outbreaks, and the proliferation of non-native plants and animals, according to Seashore records.

Following a 2001 fish kill, the town of Truro and the Seashore began cooperating to restore East Harbor to its ocean roots by permanently opening a culvert that connects to the bay. Since then, many native plants and animals — including horseshoe crabs — have returned.

"It's a refuge," Seashore resources and monitoring coordinator Megan Tyrrell said of East Harbor's importance to the crabs.

Horseshoe crabs are found along the Atlantic coast from northern Maine to the Yucatan Peninsula, according to the Atlantic States Marine Fisheries Commission, a 15-state agency that coordinates the sustainable use of near-shore marine resources.

Along the Atlantic coast, the crabs are commercially harvested as bait for the American eel and conch fisheries. Also, medical researchers use horseshoe crab blood, without killing the animals, to help detect contaminated medical devices and drugs. The primary harvest grounds are in Delaware Bay, followed by New York, New England and the Southeast, according to the marine fisheries commission.

On Cape Cod, horseshoe crabs are most plentiful at Monomoy National Wildlife Refuge off Chatham, a federal reservation where harvesting the crabs is prohibited. Crab harvesting is also prohibited in the Seashore, with penalties up to \$5,000 and six months in jail, Seashore Chief Ranger Bob Grant said.

On lands that are not federally regulated, state rules kick in. There is a limit of 250 commercial horseshoe crab harvesting permits in Massachusetts, and there are also annual and daily harvest quotas and restrictions during peak spawning periods, said Dan McKiernan, deputy director of the state Division of Marine Fisheries.

But there is a sense, at least among Cape scientists, that the region's horseshoe crab population may be too thin, given that the state's catch quotas are never exceeded, according to Prescott. Besides harvesting, the crab's ability to thrive on Cape Cod is threatened by property development such as the installation of sea walls on Wellfleet's Lieutenant Island and Indian Neck peninsula and the loss of high-tide spawning hotspots on sandy beaches, Prescott said.

"We may not be protecting crabs," he said.

Based on that theory, scientists at the Audubon sanctuary in Wellfleet conducted a survey of horseshoe crabs on the Lower Cape in the early 2000s to establish a baseline population, and have been working on a comparison count in the past four years. The analysis of the data is not yet complete, Prescott said.

Any analysis of horseshoe crab populations, though, has an added twist given the animal's homebody tendencies, McKiernan and Prescott said. The crabs don't float around as part of their breeding cycle, which could allow a plentiful population from one shoreline to help repopulate another area that is depleted.

"The horseshoe crabs in Wellfleet have no relation to the crabs in Westport," McKiernan said, speaking hypothetically about isolated pockets of crab populations in Southeastern Massachusetts.

"This is a management challenge."