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Cape Cod needs crab counters

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David Still II photo

GETTING CRABBY – Horseshoe crabs at Dowse’s Beach in Osterville doing their best to continue the species. Researchers of these ancient creatures say that’s a good thing.

Seeking clues to horseshoe crab’s decline

I know the seasons by the hyperbole of magnolias, the phantasm of forsythia and then the coming of small giants clumping against my bare toes in the amniotic tidal waters of inlets under a full citrine moon.

They are part of the eternal ritual of arrival and the order of the changing seasons. In the spring to summer in our area, horseshoe crabs (*Limulus polyphemus*) cluster to mate in embayments, coming in on spring tides under full and new moons, often where barrier dunes slop down like ice cream protecting the tidal marshes behind them, while shorebirds holler above algae and salt.

University of Massachusetts master’s degree candidates Sarah Martinez and Katherine Terkanian are working together to answer the same question: Are Massachusetts horseshoe crabs a singular population, or are they comprised of sub-populations around the state?

Katherine studies the genetic make up of crab populations across the state. Sarah has radio tagged 75 crabs in Chatham's Stage Harbor to see if they migrate out to Nantucket or Monomoy or further. Vin Malkowski of the state Division of Marine Fisheries monitors the listening stations. Data will be reviewed in the fall.

Sarah is from Yarmouth and Katherine from Wellfleet. Growing up loving seeing the horseshoes and noting anecdotally through their young lifetimes (they are in their 20s) a decline motivated them to study the animals.

In May and June scientists up and down the east coast, with the help of citizen volunteers, survey Limulus populations. Katherine and Sarah will supervise surveys at Wellfleet, Chatham's Harding Beach, and in Orleans. Five by five meter squares are set up and within them are noted weather and sea conditions, numbers of females and how many mating males cluster about her.

During a season, some 63,000 eggs can be laid in intervals in "nests" the females dig about a hand down into the sand. The males fertilize them after they are deposited.

Tagged animals are reported. Like bird bands, tags tell US Fish and Wildlife where they came from.

Accumulated data may solve controversy over the root cause of the fall in crab numbers perhaps by the millions through the 1990s to now. One ostensible reason: harvest for bait for attracting conch and eels for food for the Asian market.

Another possibility: high mortality when their blue blood is collected for the LAL (Limulus Amoebocyte Lysate) that clots when toxins intrude, an invaluable tool in saving humans from bacterial toxins lurking in vaccines and medical equipment. Another possibility: fidelity to small natal areas, which makes populations very vulnerable to disturbances engendered by coastal development. Dredging, jetties, and beach armoring by revetments, can destroy fragile breeding areas.

Biologists also study Limulus as a keystone species, the lintel at the top of an ecological structure, which when destroyed makes the whole house fall. Red knot populations have fallen concurrently with those of the crab. The crabs are also affected by natural causes: bad weather and cold water limit their ardor. Pollution, oil spills, climate change also can do them harm.

While conservation efforts by a coalition of scientists and local activists have helped to put in more stringent regulations to the crab harvests, more data are needed to really ensure that these cryptic creators of summer memories last for another millennium. These benign old beings have helped humans, and tickled our fancy. Now it's time for us to mentor them!

If you want to help survey the horseshoe crab, call Wellfleet Bay, Mass Audubon at 508-349-2615 and ask for Diane, the volunteer coordinator. All through June, the crabs would love to have you.