Interns Performing the 2020 Horseshoe Crab Survey at Ellis Point.

Volunteer Horseshoe Crab Survey

Project Contact:
Nivette Pérez-Pérez
Manager of Community Science
nperezperez@inlandbays.org

Project Summary

The Atlantic horseshoe crab is one of four living species of horseshoe crabs and the only one found along the Atlantic Coast of North America. This "living fossil" is economically and ecologically valuable because of its importance for shorebirds, the medical industry, and the American Eel and conch fisheries, but little is known about their local population here in the Inland Bays. The goals of this project are to survey current crab population levels and sex ratios, and monitor any changes over time. Results can also be compared with data collected from nearby estuaries.

Why Do Horseshoe Crabs Matter?

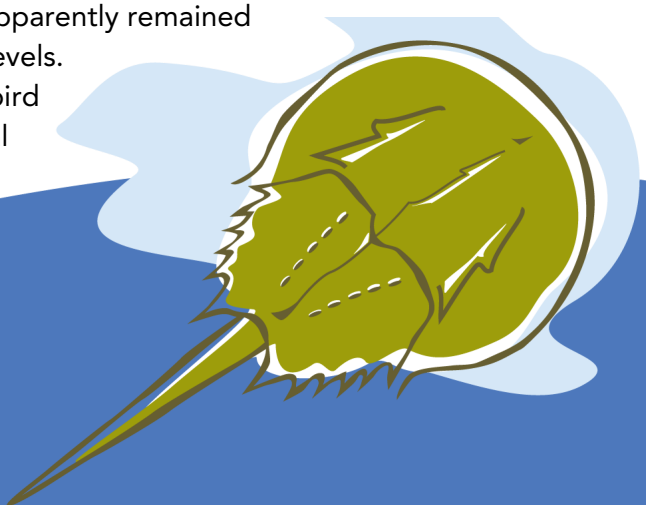
This species is ecologically, economically, and culturally important to the Inland Bays. Horseshoe crab eggs provide a vital source of food for migratory shorebirds and resident species such as Laughing Gulls, as well as fish species such as Striped Bass. In addition, an extract from their blood known as limulus amebocyte lysate (LAL) is used to test for bacterial contamination in drugs, vaccines, and medical devices, literally saving lives!

How Do We Complete the Survey?

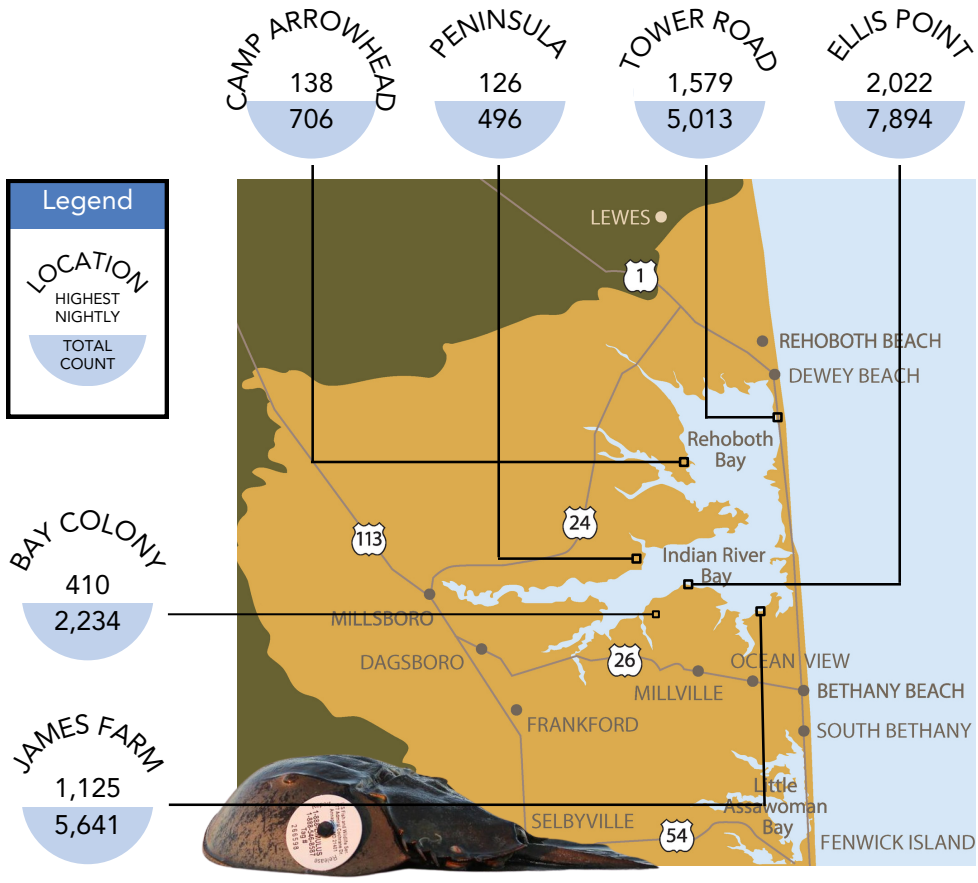
In May and June, horseshoe crabs travel to sandy beaches in the Inland Bays and congregate in mass spawning events that peak at high tide near the new and full moon. On these peak nights, volunteers move along the beach's high tide line counting the number of crabs found within one-square-meter "quadrats." This process is repeated 100 times per beach. Following each survey, a portion of crabs are tagged and released using U.S. Fish & Wildlife Service guidelines.

What Have We Learned?

Survey results show that the Inland Bays are heavily used as spawning habitat for horseshoe crabs, with densities of spawning crabs on many beaches approaching those seen in Delaware Bay, which is known as the world's largest spawning site. The proportion of male crabs compared to females in the Inland Bays consistently exceeds the minimum 2:1 ratio needed to ensure healthy genetic diversity. However, while populations of horseshoe crabs in the Inland Bays have apparently remained stable over the past five years, they are still far below historic levels. The critical role of this species in supporting threatened shorebird populations highlights the importance of conserving the natural shorelines that they need in order to grow their populations.



DELAWARE CENTER FOR THE
INLAND BAYS
Research. Educate. Restore.



2022 total horseshoe crab counts by sampling site with an image of a tagged crab.

2022 Survey Highlights

Once again we were unable to work with our incredible volunteers, who make this survey possible. However, co-team leaders and other modifications that were made during COVID-19 were kept as necessary to made the data collection in 2022 survey a success.

The ongoing tagging program in collaboration with US Fish and Wildlife Service has tagged over 15,000 crabs since 2002. Analysis suggests that considerable population mixing takes place between the Inland Bays and Delaware Bay.

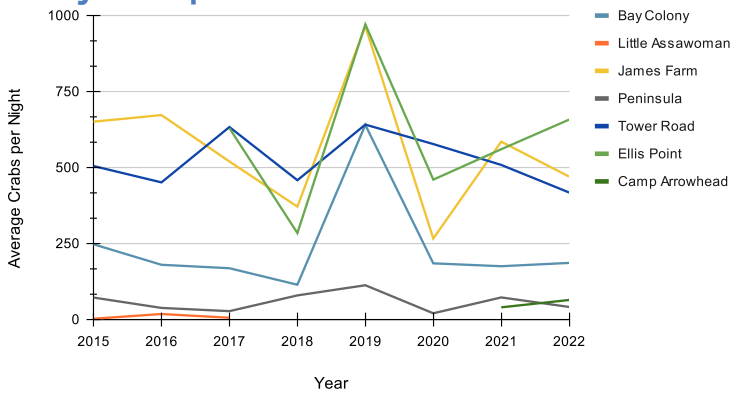
In 2022, a total of 3,250 horseshoe crabs were tagged.

- In 2022, a total of 21,984 crabs were counted at six beaches in Rehoboth and Indian River Bays: 18,172 males and 3,812 females.
- The average number of crabs counted per quadrat (one square meter) was 3.1.
- The average number of male crabs for each female crab was 4.8, which indicates a healthy genetic diversity.
- The single highest count for the year occurred at Ellis Point on May 28, when 2,022 crabs were counted in one night.
- Fewer crabs were counted in 2022 compared to high numbers counted in 2021. That difference does not necessarily mean a decreasing trend, as the 2022 numbers still fall within the long-term average for the Bays.

Want to Get Involved?

Help us count and tag crabs! We are always looking for volunteers. If you see a crab with a tag on it, report it to USFWS. For more information, go to inlandbays.org.

Yearly Comparison of Crab Counts



Graphic shows average counts of horseshoe crabs per night.

DELAWARE CENTER FOR THE
INLAND BAYS
Research. Educate. Restore.

39375 Inlet Rd
Rehoboth Beach, DE 19971

(302) 226-8105

The Delaware Center for the Inland Bays is a nonprofit organization established in 1994 to promote the wise use and enhancement of the Inland Bays and its watershed. With its many partners, the Center conducts public outreach and education, develops and implements restoration projects, encourages scientific inquiry, and sponsors research. To learn how you can get on board with the bays, go to inlandbays.org.