

Horseshoe crab tagging program underway at Dauphin Island Sea Lab

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DAUPHIN ISLAND — American horseshoe crabs — those spiny, briny creatures with a vaguely alien look to them — may seem common to some beach-goers in Alabama, but their physical properties are unique.

Their copper-rich blue blood makes them of particular interest for medical research and human health, and scientists at the Dauphin Island Sea Lab (DISL) are about to investigate their local populations further with a first-ever tagging program in the state of Alabama.

Dr. Ruth H. Carmichael, Senior Marine Scientist, DISL and Associate Professor at University of South Alabama, and undergraduate Sean Carter, a rising senior at Colorado College in Colorado Springs, are initiating the study. While the crabs have been studied extensively in other areas of the U.S. and even other areas of the Gulf of Mexico, such as Mexico and Florida, very little investigation has been done on the topic as it relates to the Alabama coast.

Mr. Carter, a Research Experience for Undergraduates fellow at the DISL this summer, is conducting the study as part of an independent research project, examining the previous data set gathered by a Research Scientist at Alabama A & M University, Maury Estes, who is developing a habitat suitability model based in part on Carmichael's hypothesis that the unique salinity levels of the estuarine Mobile Bay – Mississippi Sound system may result in fewer horseshoe crabs along the Alabama coastline compared to adjacent areas. Documenting exact population numbers in a given area is difficult; as a result, Carmichael and Estes have tested the use of molts found on shore to provide data on size and timing of molting in the area.

Carter's research will further investigate and support this ongoing research by tagging live horseshoe crabs and a collection of crab molts before releasing them back into the wild. This research is the first of its kind in the northern Gulf of Mexico, and it is already underway—Carter tagged the first two horseshoe crabs, a mate pair, in Alabama on June 4th.



Tagging horseshoe crabs

DISL REU fellow Sean Carter with a tagged horseshoe crab molt. This tagging project is part of his independent research project for his DISL fellowship.

The project has many potential larger implications in the world of marine science and beyond. “Horseshoe crabs can be used for eel fishing and also medical uses, since their blood can be used to detect bacterial toxins in medical equipment,” Carter explains. “Knowing where their populations are and their status can really help inform future conservation.” Additionally, surveying the horseshoe crab populations and monitoring their migrations in this region can help determine the effects of climate change or other major events on not only this species, but on marine life as a whole.

Carter has learned a lot about the species he is studying since he began his project at the beginning of June. “They’re really interesting,” he says, picking up one of the nearly 150 molts stored in the laboratory where he analyzes collected data. Still, his favorite part of the enormous undertaking of his project so far lies with the high-tech computer programs he uses to find out how landscape affects where the crabs are.

Anyone who finds a tagged horseshoe crab or molt is asked to contact (251) 861-2141 ext. 7547, scarter@disl.org, or rcarmichael@disl.org with details of the location, time of day, and contact information in case further communication is needed.

Some tags also bear a US Fish and Wildlife Service number where local tags can be reported; all data are returned to the DISL.USFWS provided tags for live animals and molts free of charge to support this burgeoning program.