

***Abstract:***

This study investigates the impact of environmental conditions on the development of juvenile Atlantic horseshoe crabs (HSCs) in nurseries. By comparing protected and unprotected nurseries, the research examines how predator access affects juvenile growth and survival. Additionally, the influence of terrestrial landscape on nursery functionality is explored. The project combines aerial imagery and field measurements to analyze eight nurseries on Shackleford Banks, North Carolina. Using Geographic Information System (GIS) tools, the research aims to uncover patterns that affect nursery dynamics. The study addresses gaps in early-life HSC research, with implications for habitat conservation and the state of ecosystems.