Optimizing Rearing Protocols for Limulus polyphemus Larvae and Juveniles – The Effects of Tank Conditions on Oxygen Metabolism.

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Abstract

Horseshoe crabs are invertebrates that have existed for millions of years. Their blood is used in the medical field as a test for endotoxins; it is the most efficient and reliable test to date. Scientists have not been able to synthetically generate the exact formula for the blood, and therefore the horseshoe crab population must be restored in order to ensure that the blood does not disappear with the population. The purpose of this work was to gain a better understanding of the tools to use for rearing Limulus eggs, larvae, and juveniles in captive settings. The goal of this study was to determine the effects of temperature on metabolic rate and rate of development of larvae and first instars of Limulus polyphemus. It was found that the larval stage had a greater metabolic demand for oxygen then the preceding juvenile stage, and that growth rates were likely higher in warmer temperatures.

Introduction

Limulus polyphemus, the North American horseshoe crab, is one of the earth's living fossils; their lineage extends back over 350 million years (Avise, et al. 1994). Horseshoe crabs appeared on earth millions of years before the dinosaurs and have existed for millions of years after their demise (Avise, et al. 1994). Until recently, horseshoe crabs were found in great abundance worldwide, with different species

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Biography

Martha Perez is currently a senior at the University of New Haven majoring in Marine Biology. She hopes to continue her education in graduate school and aspires to pursue a career in aquaculture.