

MS Thesis
Department of Environmental Science and Policy
College of Science
George Mason University

Candidate: Sarah R. Greenberg

Defense Date and Time: April 26, 2023

Defense Location: Potomac Science Center 3102 and Zoom

Title: Does salinity influence the spatiotemporal distribution of two castrating parasites of an estuarine mud crab host?

Thesis Director: Dr. Amy Fowler

Committee: Dr. April M.H. Blakeslee, Dr. Daniel Hanley

ABSTRACT

Estuarine organisms can utilize salinity extremes to evade threats such as parasitic infection but with the cost of osmotic stress. In the Chesapeake Bay, it is theorized that the mud crab host *Rhithropanopeus harrisii* (*Rh*) can utilize a salinity refuge to escape castration by the rhizocephalan barnacle *Loxothylacus panopaei* due to its intolerance <10ppt, however recently described castrating isopods (*Cryptocancrion brevibrachium* – *Cb*) exist in these regions. This thesis investigates the spatiotemporal distribution of *Rh* and its parasites along a salinity gradient, the impact of infection on *Rh* fitness and fecundity, and the low salinity tolerance of *Cb*'s first larval stage.