

The immune response of ribbed mussels (*Geukensia demissa*) to ocean acidification

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The ribbed mussel (*Geukensia demissa*) improves water clarity due to its filtering activities, in addition to other positive effects on the health of the salt marsh. However, research is less established for this species than it is for other shellfish species due to lower economic incentive. The relationship between ocean acidification and immunology of *G. demissa* was addressed in a 24-day experiment measuring hemocyte density over time for mussels placed in tanks with either ambient or lowered pH. CO₂ regulators were used to lower the pH in the experimental tank, and a hemocytometer was used to quantify hemocyte density. High variation of the data caused by clumping of hemocytes and insufficient sample sizes made the results inconclusive. However, results suggested that hemocyte density increased with time upon exposure to lowered pH. Two different types of hemolymph, with two different colors (white and yellowish green), were observed, with different hemocyte densities and overall biodiversity within a sample corresponding to the two colors. It is unknown what causes these two seemingly different hemolymph types to appear in different mussels. In conclusion, more research is necessary to expand on this observation, and to better explain the relationship between the immune system of *G. demissa* and ocean acidification.

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I am a Junior at the university of new haven working towards a double major in marine biology, and environmental science. I was born and raised in Milwaukie Oregon, and I have found experiences at the university and doing research over the course of this fellowship to insightful and valuable.

