

Filtration rate of the blue mussel, *Mytilus edulis*, during exposure to plankton and fucoid zygote diet treatments

The blue mussel, *Mytilus edulis*, is a widely distributed mollusc that is known for its role in the ecosystem as a filter feeder. *M. edulis* individuals from Penobscot Bay, Maine were analyzed for differences in filtration rate during exposure to two different diets for three different time periods. The expectation was that the filtration rate of mussels in the zygote diet treatment would be lower than the filtration rate of mussels in the plankton diet treatment, and that filtration rate in both treatments would decrease over time. It was determined that the filtration rate of *M. edulis* was higher in a diet consisting of fucoid zygotes than in a diet consisting of plankton, which was opposite of the expectation. In addition to differences in filtration rate between diets, the filtration rate in both diets decreased over time. A difference in filtration rate between two diets may indicate a higher nutritional value of one diet over another, in particular that the zygote diet was higher in nutrients than the plankton diet. A decreased filtration rate over time may suggest that mussels sense particle depletion within the water column, or that the need to feed decreases after feeding for a given time.

Advisor: Jessica Muhlin