

## **Investigating the effects of rising temperatures on the metabolic rates and plankton clearance rates of the blue mussel, *Mytilus edulis***

The Gulf of Maine is warming faster than 99% of other bodies of water. Bivalves, such as *M. edulis*, distributed along intertidal communities in the Gulf of Maine will be sensitive to warming waters because they are classified as ectotherms. Their decline in population has emphasized that more studies are needed to better understand how this ecologically and economically important species will cope with warming waters. In this study, *M. edulis* were exposed to current water temperatures (21°C) and predicted warming temperatures (26°C) to see if their metabolic rates and plankton clearance rates increase as temperature increases. A closed respirometry system was used to measure respiration rates in both temperature treatments. Plankton clearance rates were estimated by calculating the difference between initial concentrations and final concentrations of plankton after *M. edulis* exposure in both temperature treatments. Metabolic rates and plankton clearance rates of *M. edulis* were not significantly different between the two temperature treatments, but there was a trend that warming waters (26°C) elevated *M. edulis* clearance rates. Based on the data *M. edulis* may not experience thermal stress in the warming waters due to climate change.

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