The effect of green crab (*Carcinus maenus*) predatory risk-cues on blue mussel (*Mytilus edulis*) growth rate.

The blue mussel, *Mytilus edulis*, is an economically and ecologically important organism in Maine and the United States. The green crab, *Carcinus maenus*, is a long-established invasive species in Maine which influences marine ecosystem biodiversity, and is a main predator of the blue mussel. This study tested the effect of green crab predation risk-cues on mature blue mussel growth rates. Treatment mussels were exposed to water flow where crabs were preying on blue mussels while control mussels were receiving water flow with no crab presence. Changes over time in shell growth (integrated through a Mussel Volume Index, MVI) and mussel mass were measured and compared through statistical analyses which indicated no significant differences between treatments within the experimental time period for either MVI ($t(13)=1.16$, $p=0.267$) or mass ($t(13)=0.56$, $p=0.584$). However, trends of MVI and mass values observed over the course of the experiment suggested that these growth rates appeared to be diverging, and given more time may have resulted in a significant difference between treatments with mussels exposed to crab effluent showing reduced growth.

Advisor: Jim McKenna