

# Effects of Supersaturation of Calcium Carbonate on Hairy Shore Crab (*Hemigrapsus oregonensis*)

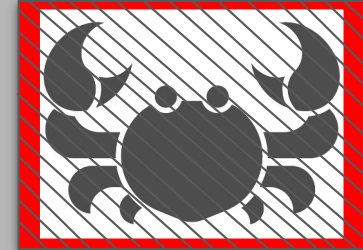
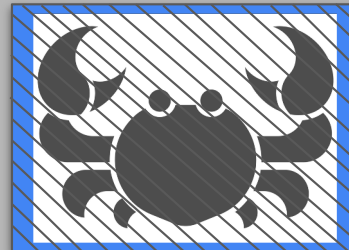
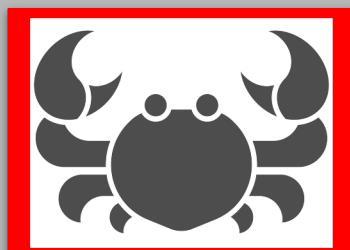
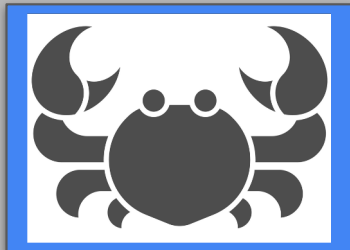
Research Question: How will dissolved calcium carbonate affect Hairy Shore Crab (*Hemigrapsus oregonensis*)?

Hypothesis (Calcium Carbonate): Excess dissolved calcium carbonate in the water will bind to both their shells and to their gills internally, reducing righting times and ability to respire

Null Hypothesis (Calcium Carbonate): Excess calcium carbonate will have no effect on the crabs

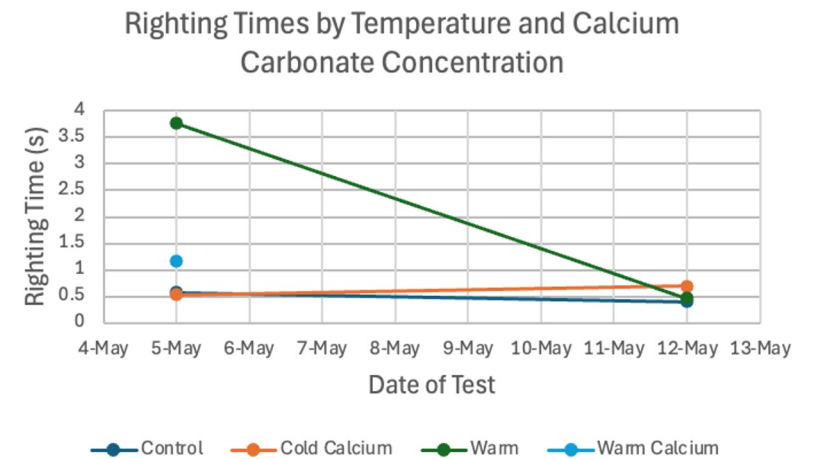
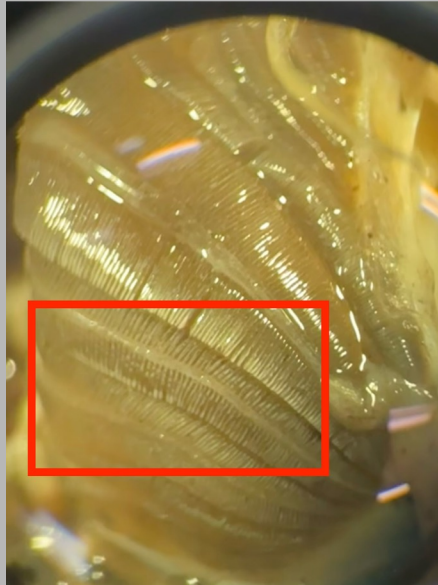
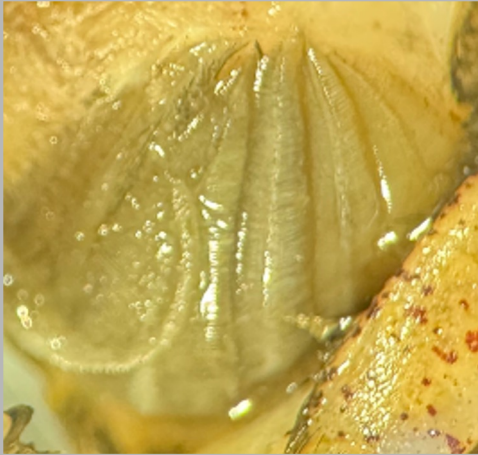
Hypothesis (Temperature): Increased temperature stress will further exacerbate the effects of the calcium carbonate and lead to longer righting times and higher mortality rates

Null Hypothesis (Temperature): Temperature will have no effect on the physiological impacts of the calcium carbonate



Four groups of five crabs were placed in four different environments: one in cold water with no  $\text{CaCO}_3$ , one in cold water with  $\text{CaCO}_3$ , one in warm water with no  $\text{CaCO}_3$ , and lastly one in warm water with  $\text{CaCO}_3$

# Results



## Proposed analysis

Qualitative profile of gill condition by treatment

Changes in hemolymph lactate and BAC protein levels by treatment

Changes in righting time by treatment