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

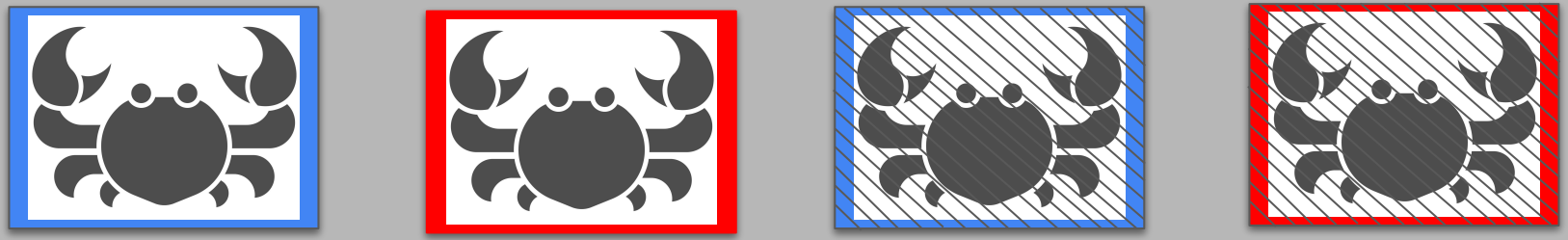
Research Question: How will dissolved calcium carbonate affect Hairy Shore Crab (*Hemigrapsus oregonensis*)?

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

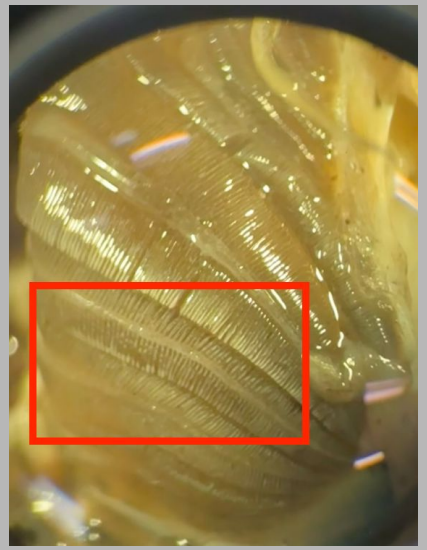
Hypothesis (Temperature): Increased temperature stress will further exacerbate the the effects of the calcium carbonate and lead to longer righting times and higher mortality rates

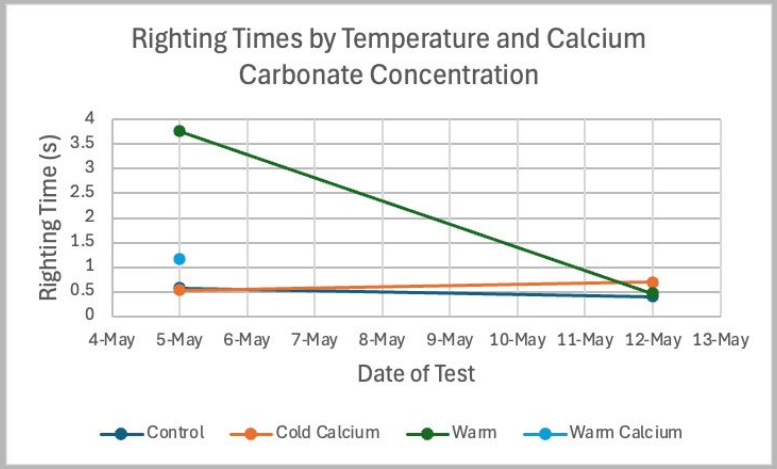
Null Hypothesis (Temperature): Temperature will have no effect on the physiological impacts of the calcium carbonate



Four groups of five crabs were placed in four different environments: one in cold water (13C) with no $CaCO_3$, one in cold water (13C) with $CaCO_3$ (1g), one in warm water (27C) with no $CaCO_3$, and lastly one in warm water (27C) with $CaCO_3$ (1g)

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