2006 Research: Blue King Crab

Objective: Study the effect of increased acidity (reduced pH) on the survival, growth and calcium uptake of larvae.

Methods: Larvae raised to first juvenile stage at ambient pH seawater and ambient pH minus 0.3 and 0.5 pH units. pH level adjusted with hydrochloric acid.

Results: Survival, growth and calcium uptake were reduced in both low pH treatments.

2007 Research: Blue King Crab

Objective: Study the effect of different pH levels on the survival and developmental morphology of early life stages.

Methods: 2006 treatments plus one more acidic and one less acidic treatment. Morphology measurements taken on larvae and juveniles.

2008-2009 Research: Carbon dioxide dosing system

Objective: Develop infrastructure for dosing multiple life stages of crab with CO2 to simulate in the lab what environmental conditions a crab experiences in the wild.

Methods: Design and build a system to put CO2 into seawater at levels we expect to see on average in the world’s oceans in the next 50-100 years.

2010-2012 Research: Red King Crab

Objective: Study survival, growth, morphology, and calcium content of embryos, larvae, and juveniles red king crab. Include molecular and cellular response to ocean acidification.

Methods: Conduct numerous exposure experiments to test pH = 7.8 and 7.5 compared to an ambient pH (8.0). Also test for additional variables such as temperature.

2012-2014 Research: Red King Crab, Tanner Crab, Golden King Crab

Objective: Expand studies to include additional species. Study survival, growth, morphology, and calcium content of embryos, larvae, and juvenile Tanner crab and golden king crab. Study Tanner crab for a full two year cycle.

Methods: Conduct similar exposure experiments to test pH = 7.8 and 7.5 compared to an ambient pH (8.0). Expand results to understand population levels of ocean acidification on Bering Sea crab stocks.

Future Research

Study additional crab and invertebrate species and life stages.