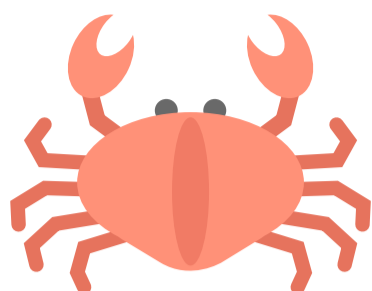


OCEAN ACIDIFICATION AND CHEMICAL SIGNALLING

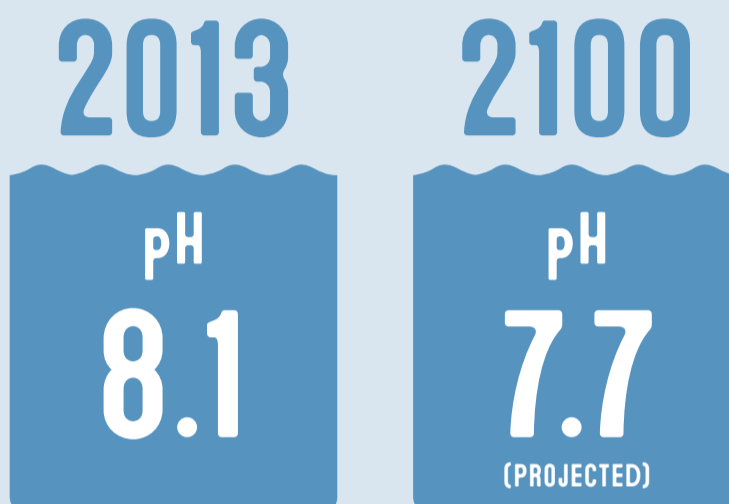
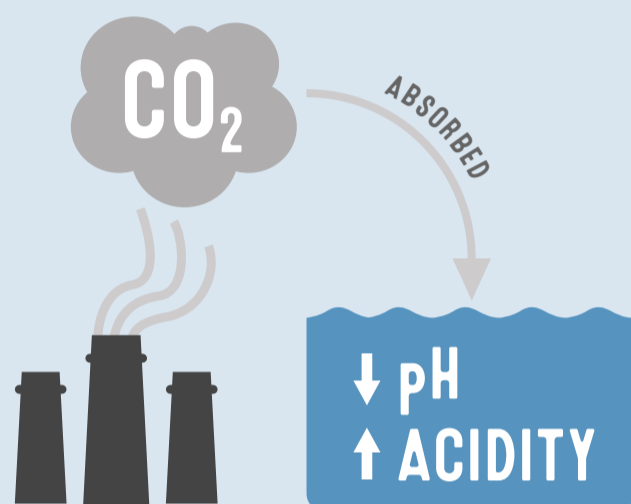
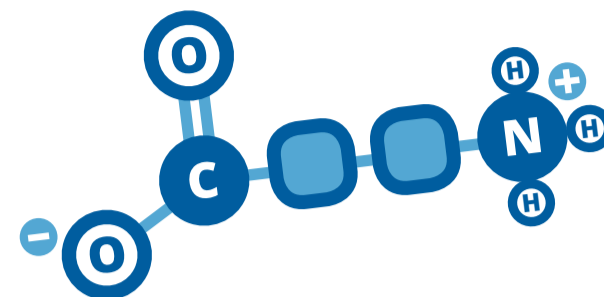


SHORE CRAB

Marine organisms use molecules called peptides, built up from amino acids, as chemical cues. The purpose of these can include detecting predators, homing, and reproduction.

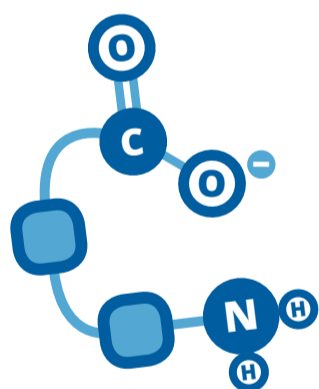
This study examined how ocean acidity affected a chemical cue which mediated egg ventilation in shore crabs.

SIGNALLING MOLECULES



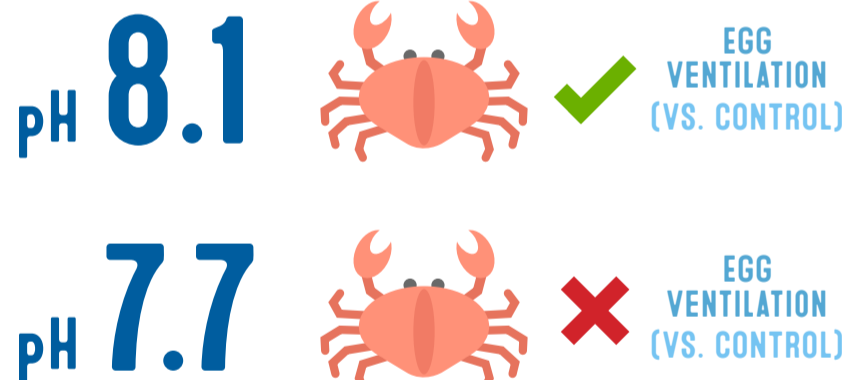
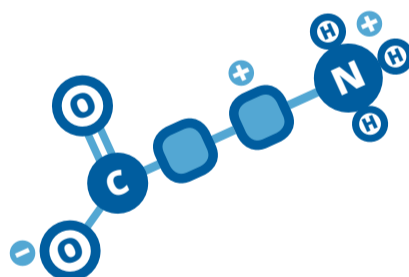
Absorption of carbon dioxide leads to an increase in ocean acidity. Acidity is tied to hydrogen ion (H^+) concentration; a decrease of one pH unit means the acidity is ten times higher.

CURRENT pH (8.1)



CONFORMATION CHANGE AND PROTONATION

FUTURE pH (7.7)



Ocean acidity causes changes in signalling peptide molecules, affecting shore crab ability to detect these cues.

WHAT ARE THE IMPLICATIONS?

A number of species use these kinds of cues for egg ventilation, hatching, and settlement. The changes caused by ocean acidification could affect them all.



Ocean acidification affects marine chemical communication by changing structure and function of peptide signalling molecules
C Roggatz, M Lorch, J Hardege and D Benoit, Global Change Biology (2016), DOI: : 10.1111/gcb.1335