

## **Cardiac response of *Carcinus maenas* and *Cancer irroratus* under acute hypoxia exposure**

Natural and anthropogenic sources of limiting nutrients paired with increasing duration and temperature of the summer season in Maine have contributed to a rise in documented hypoxia. Decapod crustaceans are negatively affected by coastal hypoxia from reduced physiological adaptations which may be species specific in crabs. In a laboratory setting, *Cancer irroratus* and *Carcinus maenas* underwent procedures to surgically implant wires beneath the carapace. Crabs were connected to electrodes that measured heart rate, and were exposed to a control normoxic, hypoxic and recovering normoxic treatment. Heart rates of individual crab species significantly differed when exposed to hypoxic oxygen concentrations. Under hypoxia treatments, *Cancer irroratus* was more negatively affected compared to *Carcinus maenas* suggesting that *Carcinus maenas* may have better physiological adaptations to deal with lowered oxygen concentrations than *Cancer irroratus*. One such adaptation is the cardioarterial hemolymph regulation within the decapod crustacean body that may increase flow to the appendages, increasing the crab's ability to move away from hypoxic regions. Changes in coastal Maine benthic ecosystems may occur when mobile organisms flee hypoxic conditions, increasing the potential for a change in food webs.

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