

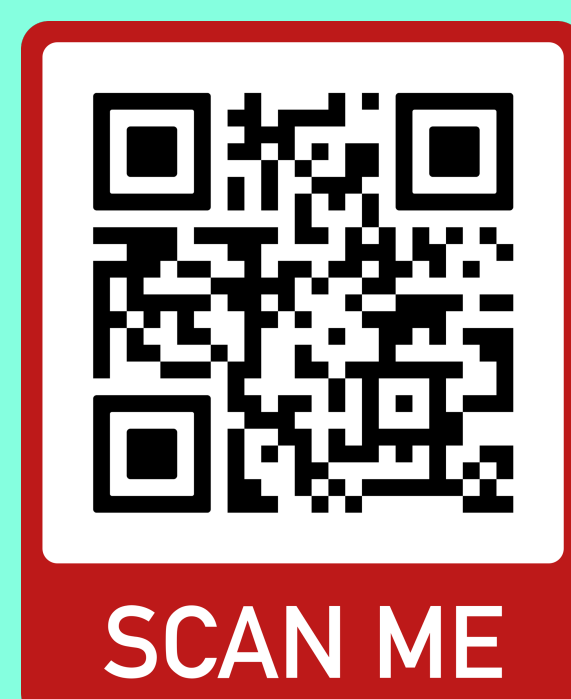
# Social Hierarchy Formation of Juvenile American Lobsters in an Acidified Ocean

## Background Information

- ✦ Lobsters are of both ecological and economic importance
- ✦ Populations rely on dominance hierarchies to determine food and mate acquisition
- ✦ Agonistic interactions and chemical cues aid lobsters in establishing dominance
- ✦ Acidification of oceans may contribute to a loss of established hierarchies

## Methods

- ✦ Experiment lasted 10 days
  - ✦ First 5 days → regular seawater, bubbled oxygen (pH 8.2)
  - ✦ Next 5 days → acidified water, bubbled CO<sub>2</sub> (pH 7.6)
- ✦ Lobsters were recorded each day for 15 minutes
- ✦ Some lobsters were **pre-treated** with acidified water before recording



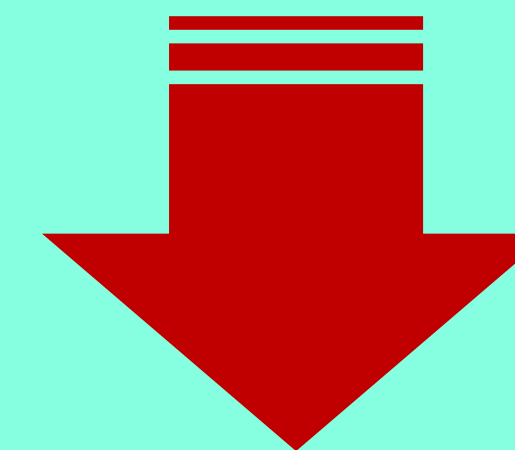
SCAN ME  
Contact Info!

## Research Question

Does acidification affect the stability of established hierarchies?



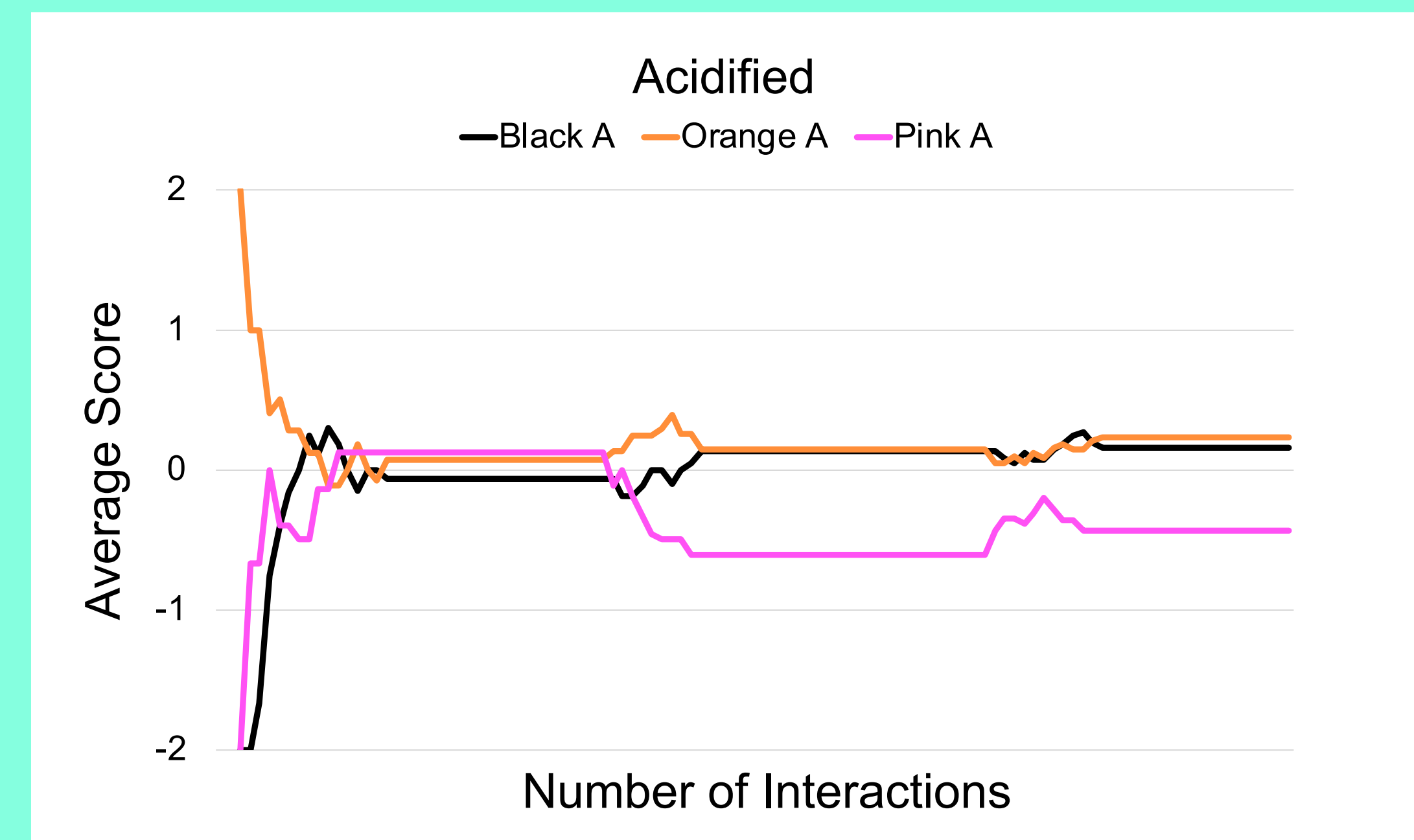
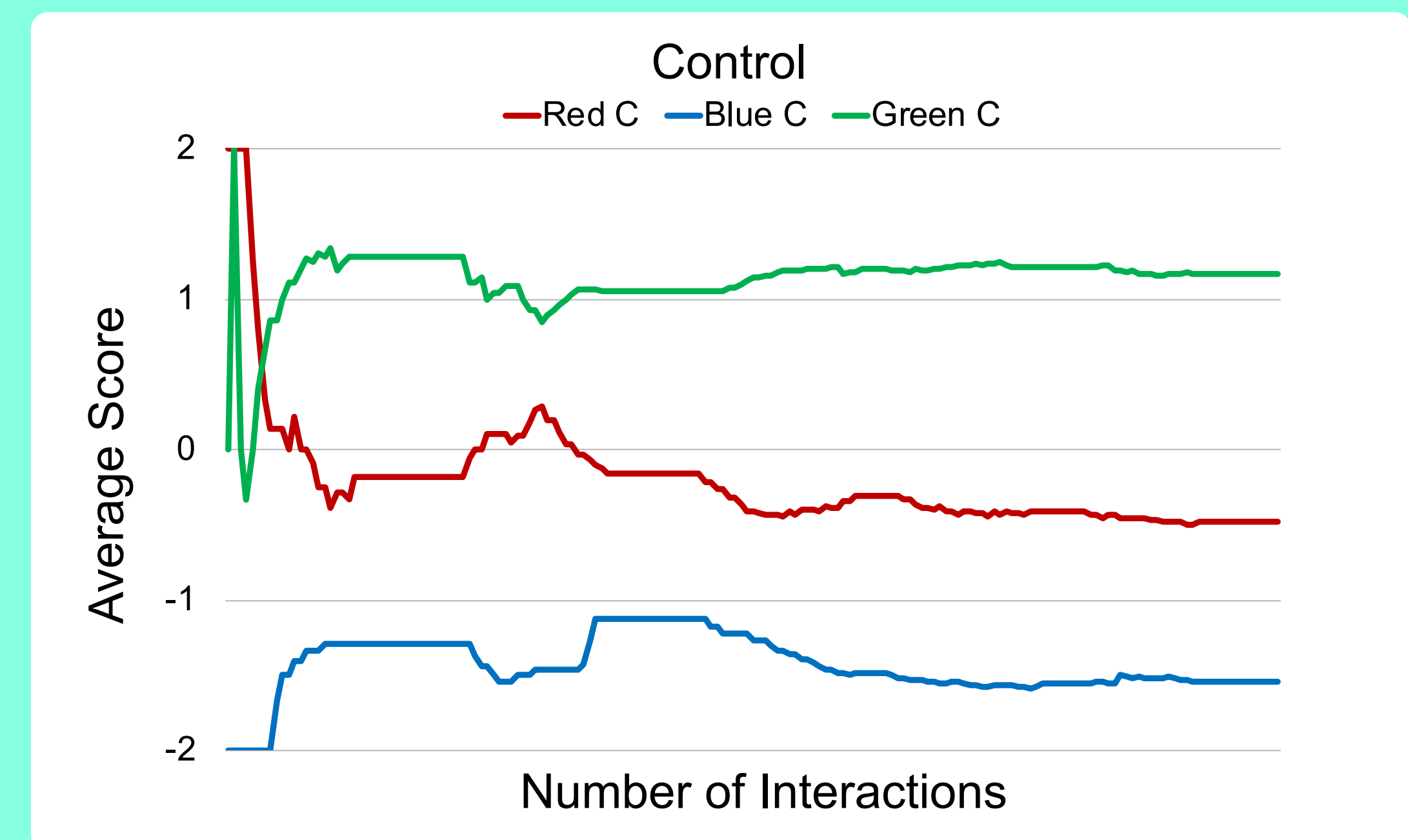
**LOBSTER  
VS.  
CRAYFISH**



- ✦ The main difference between crayfish and lobsters is that crayfish are aquatic while lobsters are marine
- ✦ Extensive literature has been written about crayfish hierarchies (study referenced below)
- ✦ Crayfish are similar enough to lobsters that the crayfish studies serve as a good reference for lobster research

Source: Jiménez-Morales, et al., "Who Is the Boss? Individual Recognition Memory and Social Hierarchy Formation in Crayfish." *Neurobiology of Learning and Memory* 147 (January 2018): 79-89.

## Results



## Conclusions

- ✦ The roles within lobster hierarchies under acidified conditions are less distinguished
- ✦ Juvenile lobsters experience longer fight times and less interaction when pre-treated
- ✦ More data needs to be collected