Addressing predictive modeling knowledge gaps to improve information used in decision making

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Background

- Future climate change
- Predictive models – limited by data available
- Seed grant - addresses this knowledge gap & builds collaborative links & ideas

Rhode Island EPSCoR

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Background

- Climate change - physiologically expensive to compensate in marine organisms
- Physiological, energetic status & food choices (prey size selection) – shellfish predators
- Perspective not taken yet – shape shellfish communities

- Common sea stars (*Asterias forbesi*)
- Atlantic Rock crabs (*Cancer irroratus*) ~96 mm carapace width
- Mussels (*Mytlius edulis*).

How can we investigate this?

IPCC year 2100 (‘business as usual’) for warming (+3.6˚C) & ocean acidification (-0.3 pH).

Narragansett Bay region.

<u>Computer controllers:</u>
Control (present day)
Hight temp.
OA
High temp + OA

60 days exposure

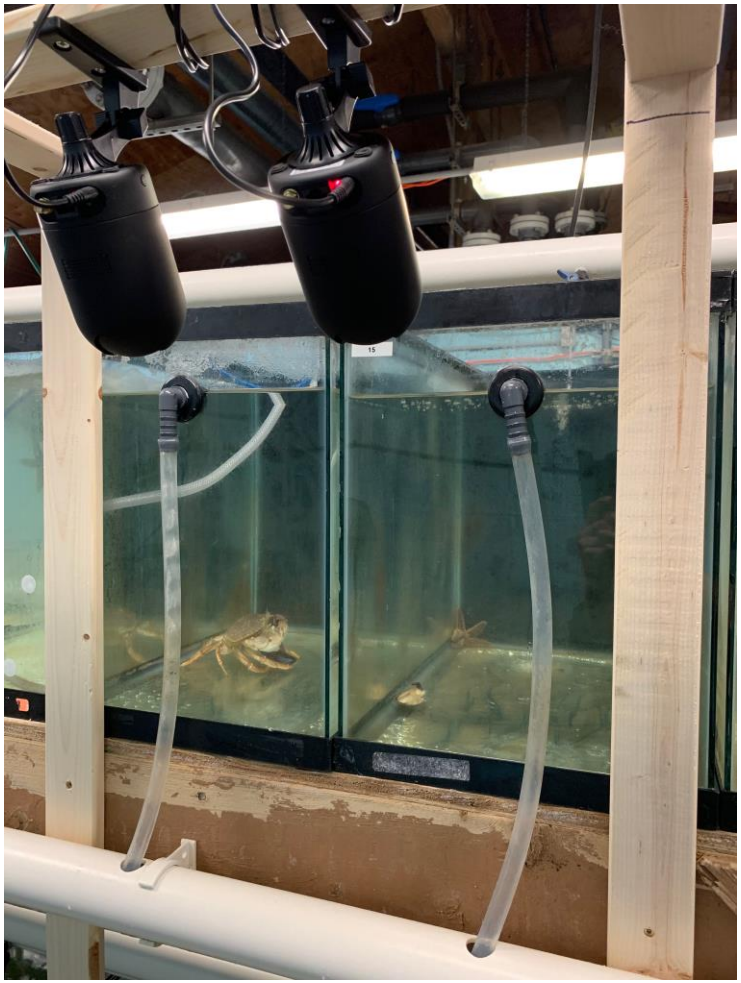
How can we investigate this?

Behavioral choices – prey size selection

Select larger higher value prey with greater return for effort or opt for smaller & lower value prey with less return for effort?

Shapes shellfish communities.

Infrared WiFi cameras

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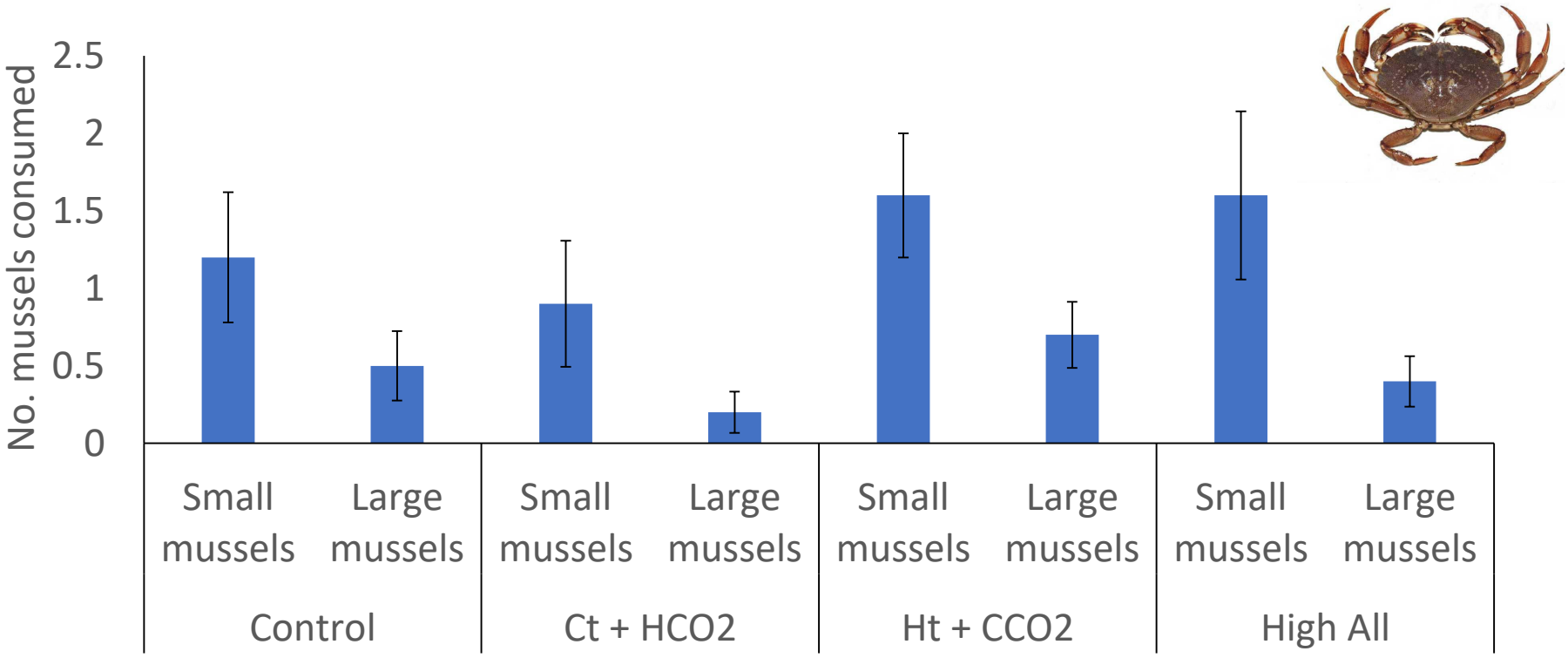
Progress so far…

- Just completing the physiology & behavioral work now – perhaps more info at next meet?
- Very few mortalities (NSD)
- Small mussels > large mussels consumed by crabs ($p<0.05$) but no treatment effect.



What's next…

- More to report at the next meeting?
- Liaising with A. Humphries – modeling data (URI, FAVS)
- Discussions with DEM – knowledge needs on Climate change levels
- Stakeholders – any major prey/predator syst should consider/ concerns about?

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Thank you!

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