

# Kelp Crabs Eat Kelp. And Lots Else?

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Berry



# Bull Kelp Forests – Ecologically Important Nearshore Habitats





# (Possible) Kelp Consumers

Northern kelp crabs,  
*Pugettia producta*



# Laboratory Feeding Experiments

“Buffet- Style” choice

Feeding Experiments

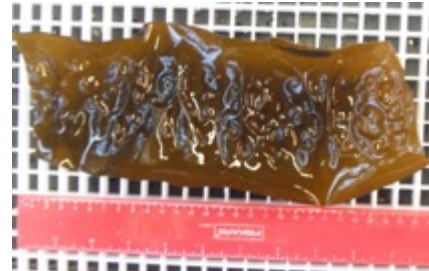
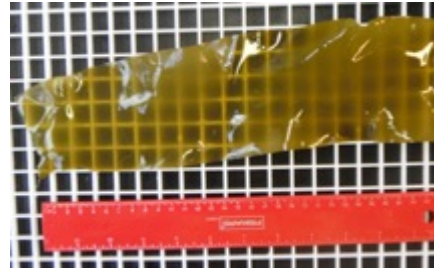
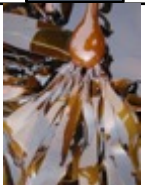
n=7-11



*Nereocystis*

*Macroalga #1*

*Macroalga #2*



Controls

n=7-11

(same as number of crabs to allow random pairing for adjustment)

*Nereocystis*

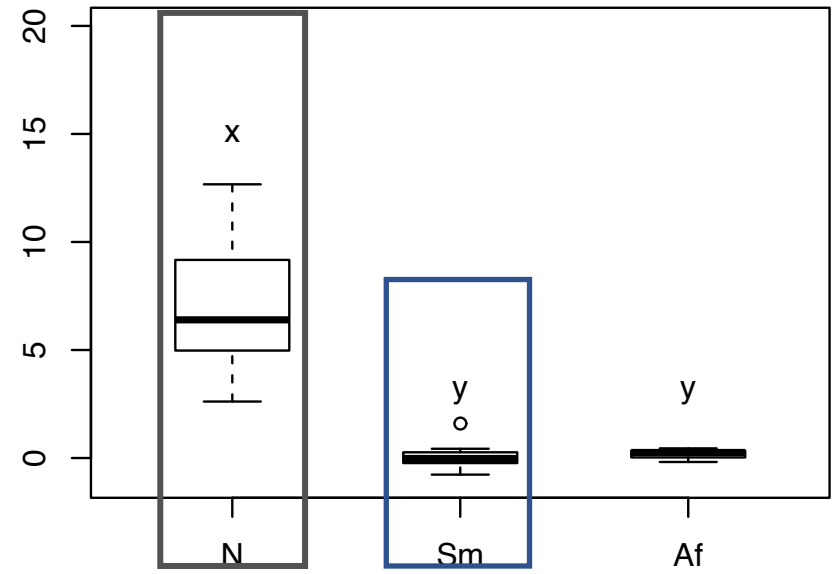
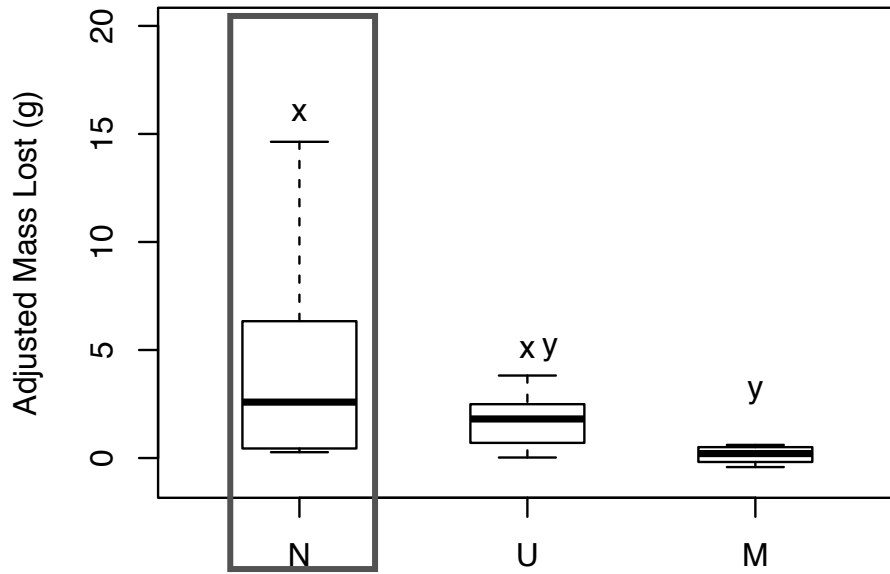
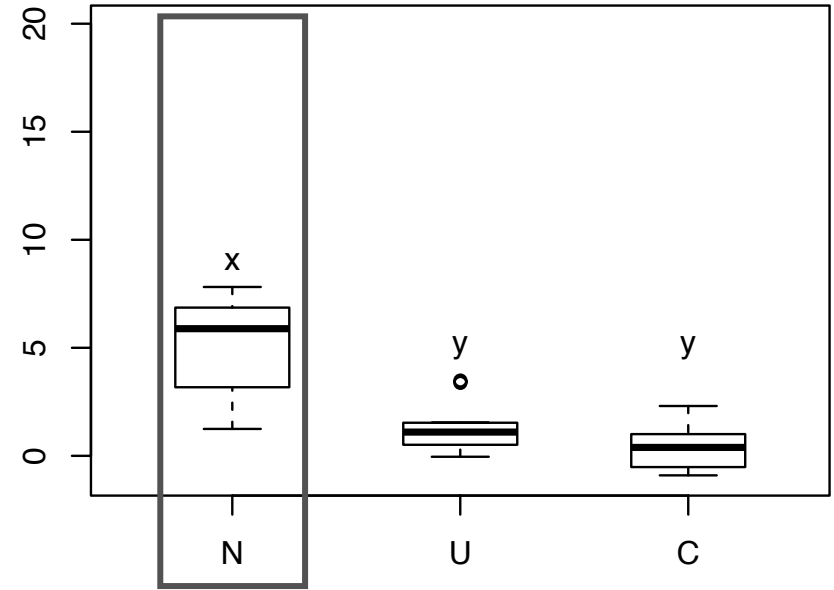
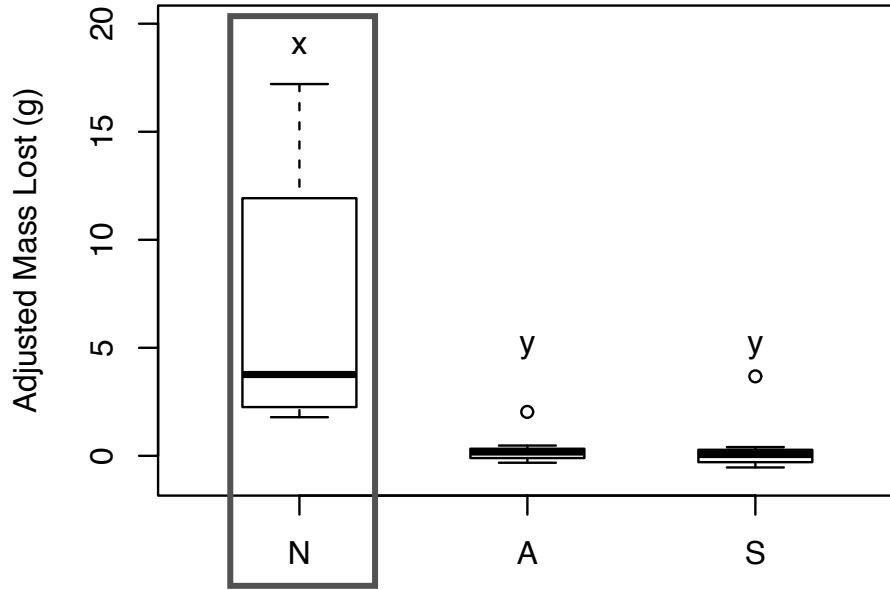
*Macroalga #1*

*Macroalga #2*

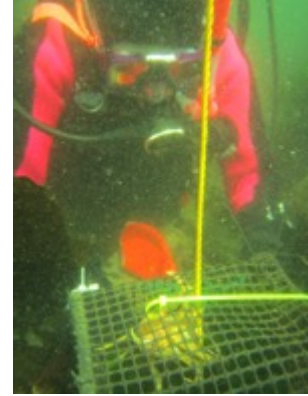




# *P. producta* elects to eat bull kelp over other species of macroalgae



# *Pugettia producta*, the Northern Kelp Crab



*Nereocystis*



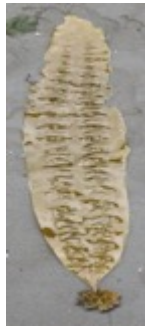
Bull Kelp

*Alaria*



Winged Kelp

*Saccharina*



Sugar Kelp

*Costaria*



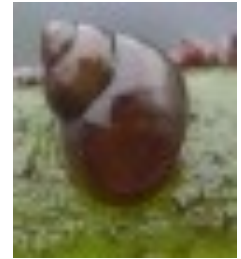
Seersucker

*Ulva*



Sea Lettuce

*Lacuna*



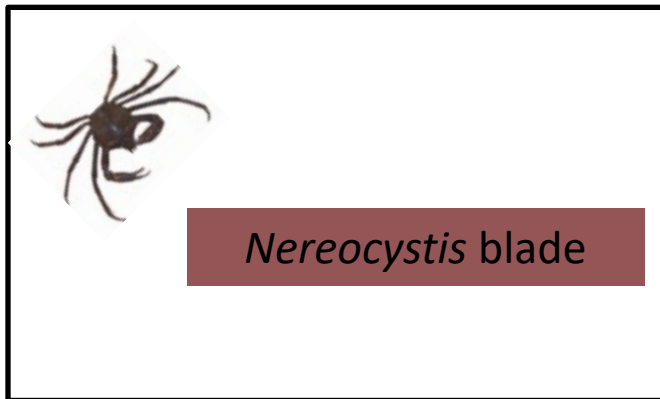
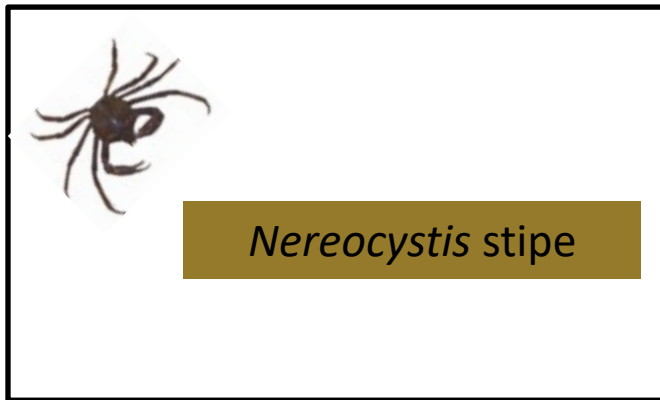
Snail



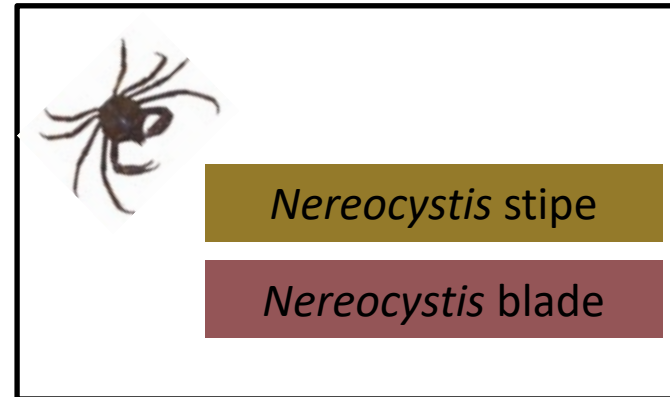
# Laboratory Feeding Experiments

Choice and No Choice “Pairwise” Comparisons

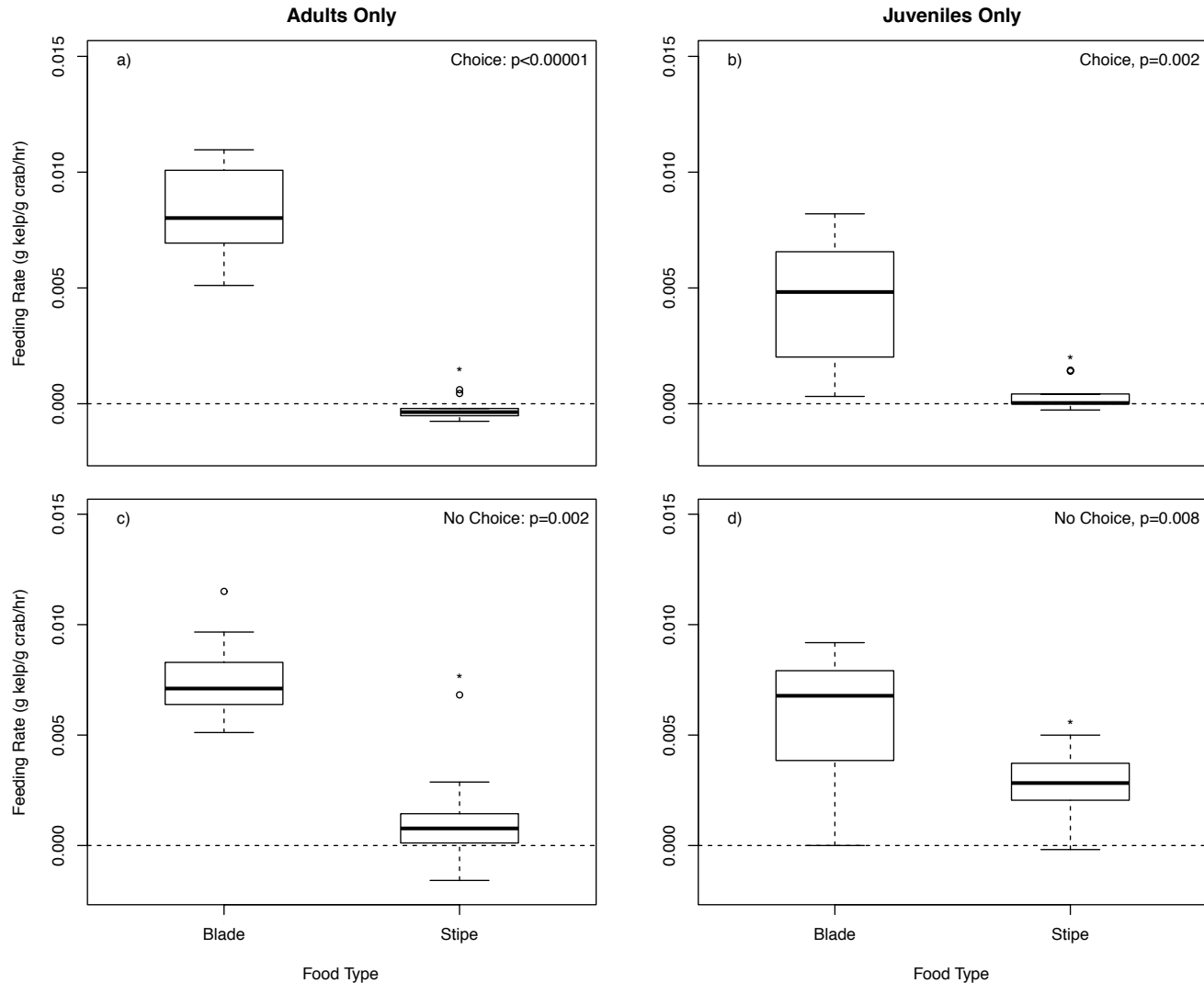
What crabs CAN eat: Paired No Choice Experiments



What crabs CHOOSE to eat: Paired Choice Experiments



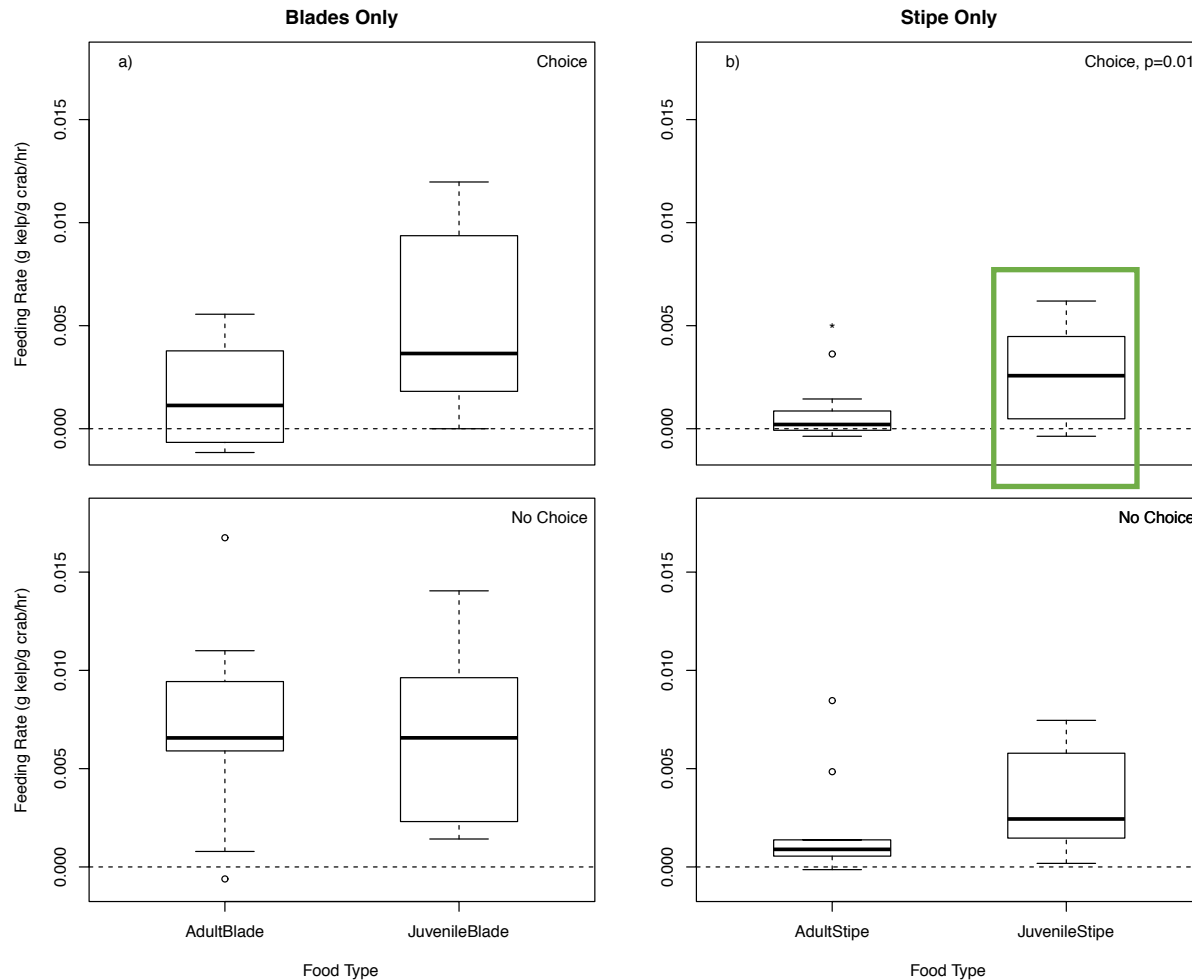
# Do kelp crab preferences vary with bull kelp life stage?



No – blades preferred in both juvenile and adult feeding experiments

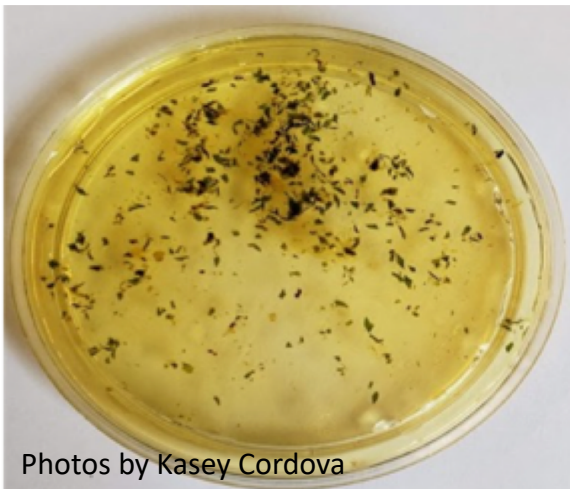
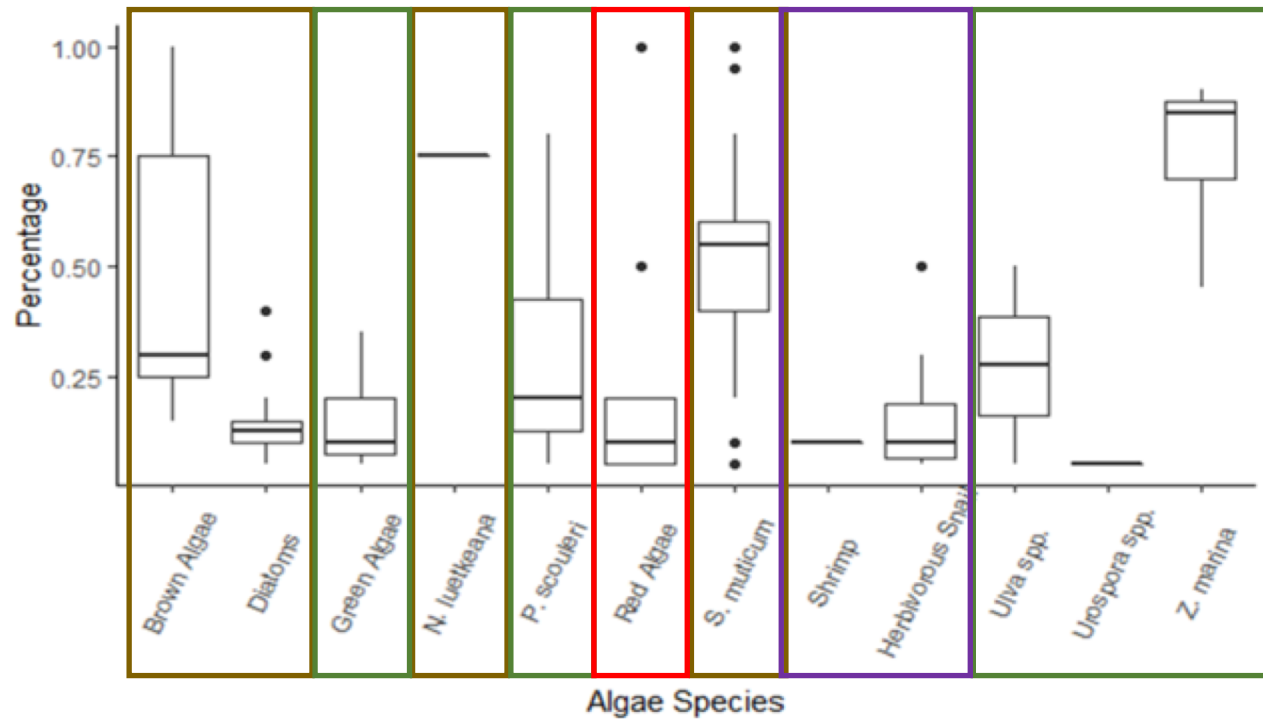


# Do kelp crabs chose to consume bull kelp stipes or blades?



Blades preferred BUT can eat stipes – if offered ONLY stipes, prefer juvenile stipe to adult stipe.

# Do kelp crabs eat *Sargassum*?



Photos by Kasey Cordova

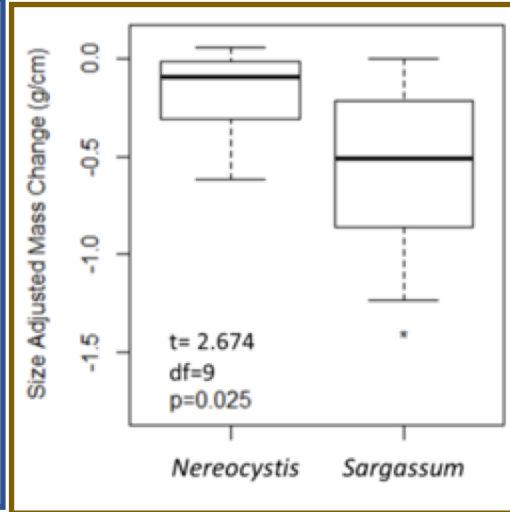
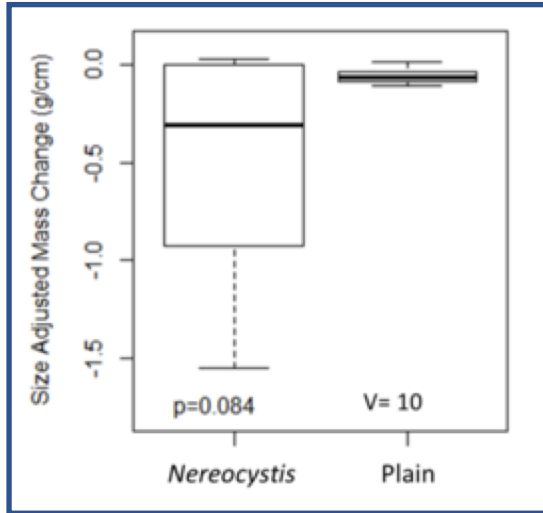
YES – and lots of other foods too.



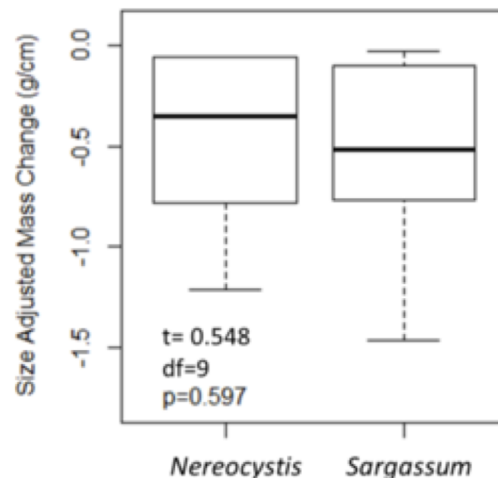
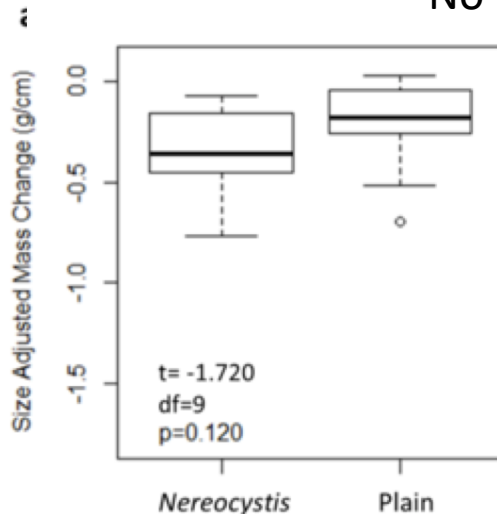
# Do kelp crabs eat *Sargassum* if the morphology effect is removed?



Choice

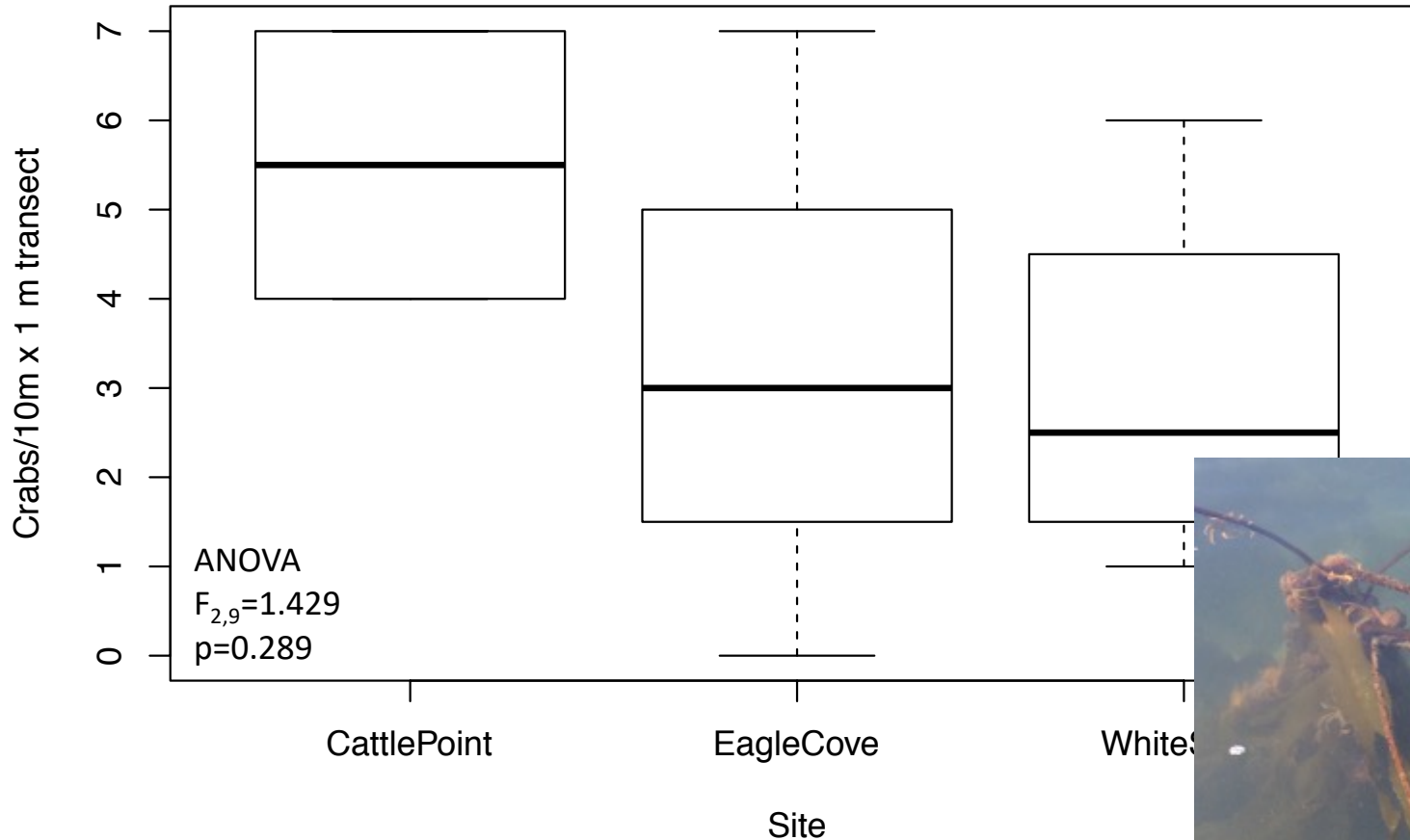


No Choice



YES – and may even prefer to consume *Sargassum* “jello” over bull kelp “jello”?!?

# How high are kelp crab densities in bull kelp beds?



It likely varies by where in the Salish Sea you are looking!

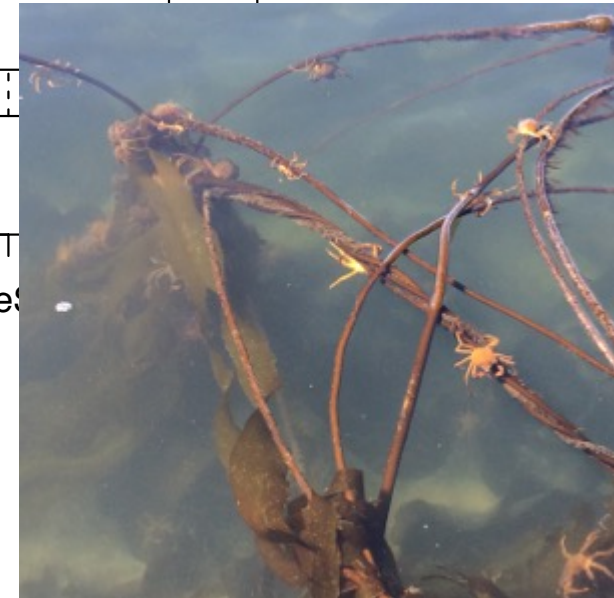
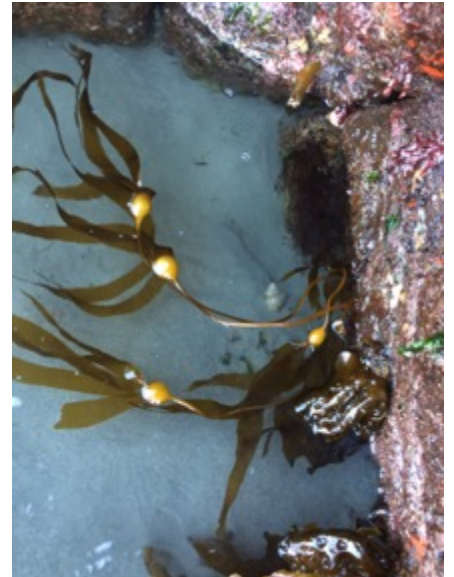


Photo by Dr. Megan Dethier



# Northern kelp crabs eat:

- Bull kelp
  - Preferred over many other macroalgae in choice trials
  - Both adult and juvenile stages
  - Blades preferred
- Snails
  - Consumed in feeding experiments
  - Present in gut content analysis
- *Sargassum*
  - Consumed fresh (found in gut content analysis)
  - As “jello” (effect of morphology removed)





# Future Directions

- Survey additional sites around the Salish Sea to quantify variation in kelp crab density and gut contents
  - Habitat and diet – match or mismatch?
    - *Nereocystis*/other kelp species
    - *Sargassum*
- Complete additional choice and no choice laboratory feeding experiments
  - “Jello” made with freeze-dried (not fresh) *Sargassum*
  - Intact fresh *Sargassum*



Questions?

