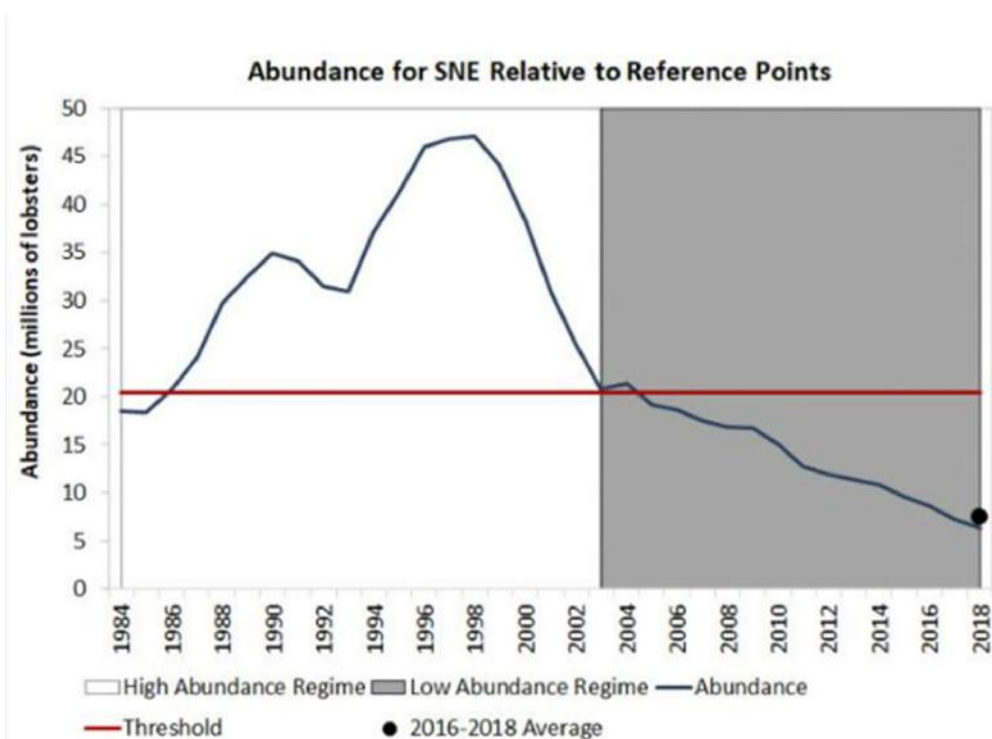


Early Life History of American Lobsters in Coastal Southern New England Waters

Declan McCormick - Dr. Jeremy Collie - Dr. Conor McManus - Dr. Rick Wahle

Southern New England (SNE) Lobster Stock



- SNE lobster stock robust in late 1990s, has declined abruptly
- Combination of fisheries mortality, environmental changes, epizootic shell disease etc.
- Climate warming primary environmental cause (Rheuban et al. 2017)

Recruitment Failure

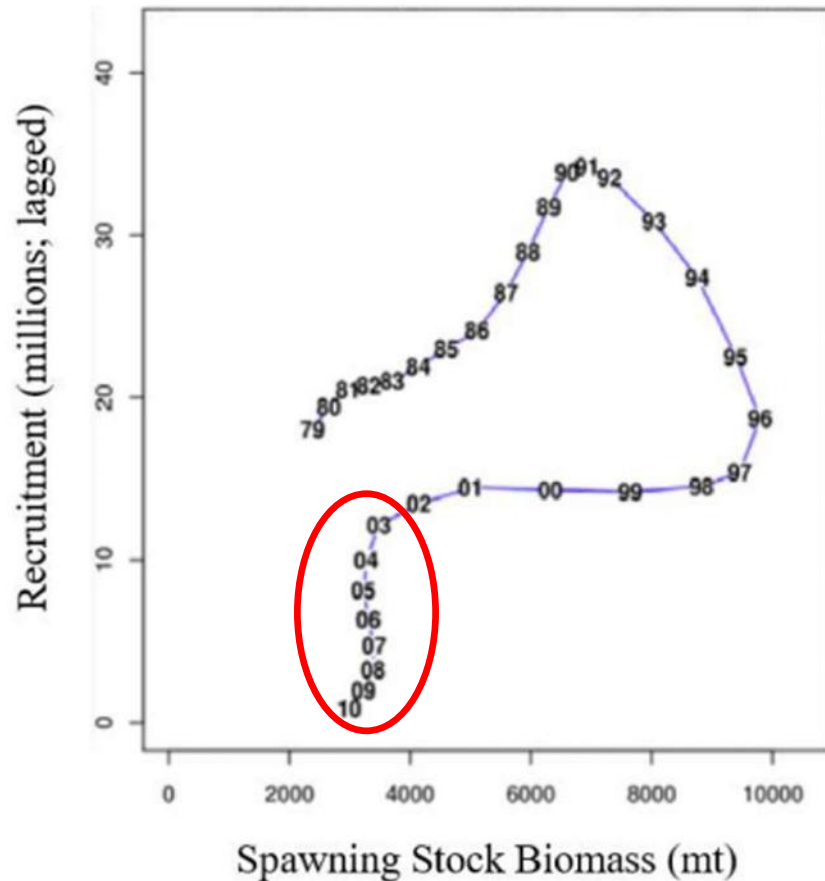


Figure adapted from ASMFC 2017

SNE lobster stock appears to be experiencing recruitment failure

Population bottleneck occurring between egg and recruit stages

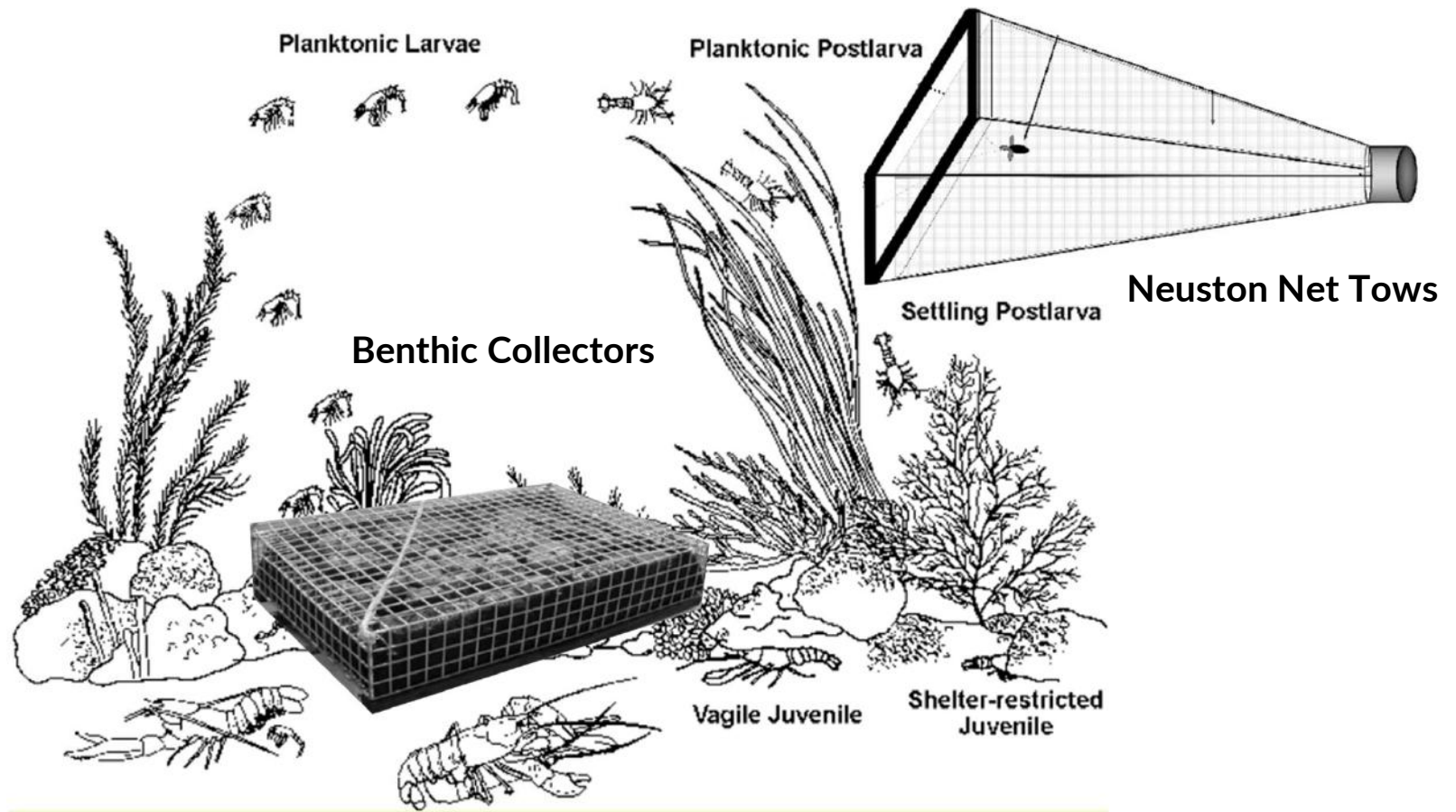
Project Objectives

To understand and quantify the recruitment bottlenecks in the lobster life history

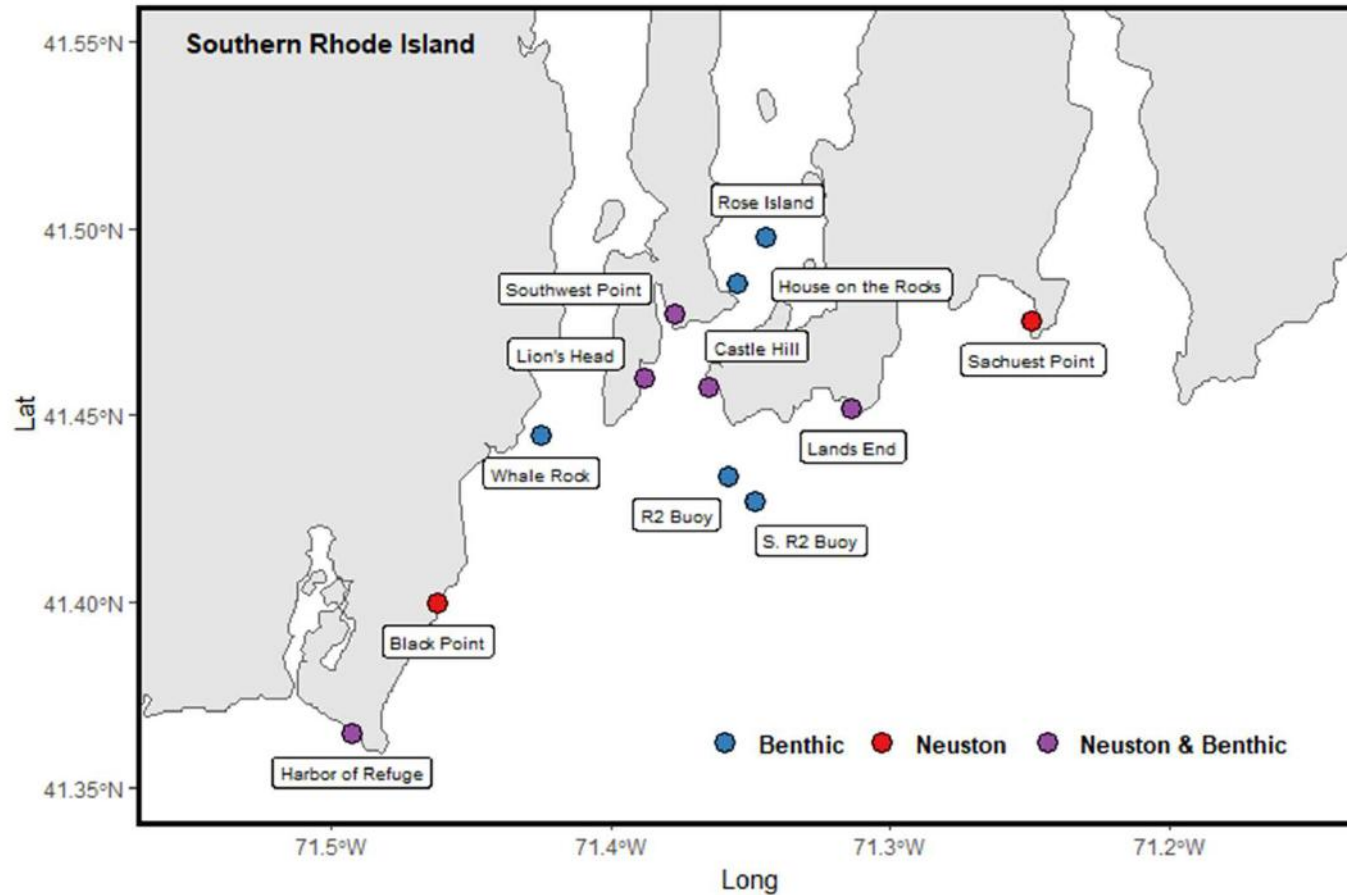
To assess the abundance and spatial distribution of larval and post-settlement lobsters in SNE

To compare observations of abundance and spatial distributions with historical data to observe changes over time

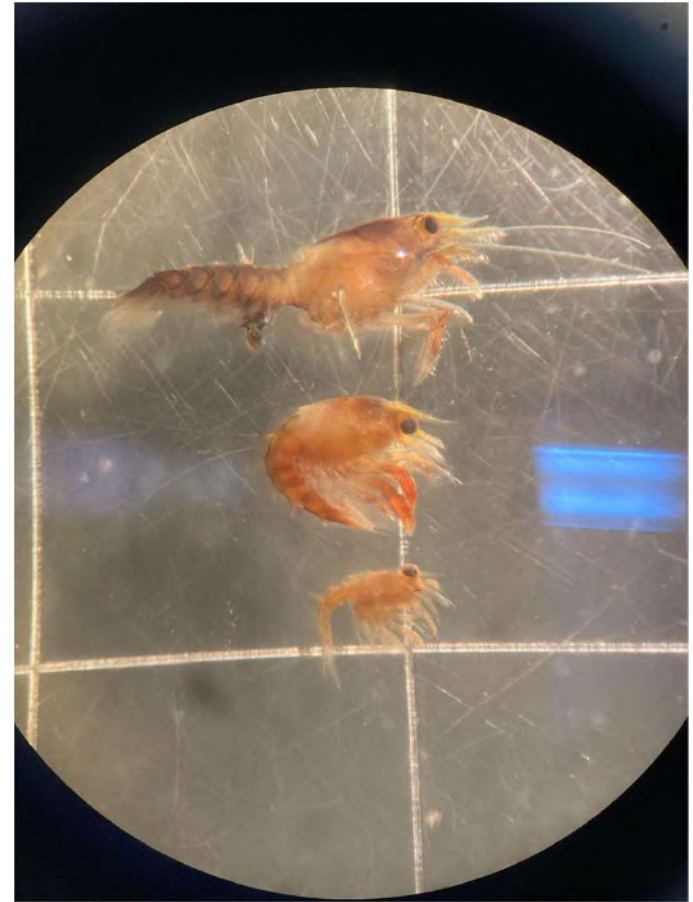
American Lobster Life History Overview



Rhode Island Sampling Sites



Larval Sampling

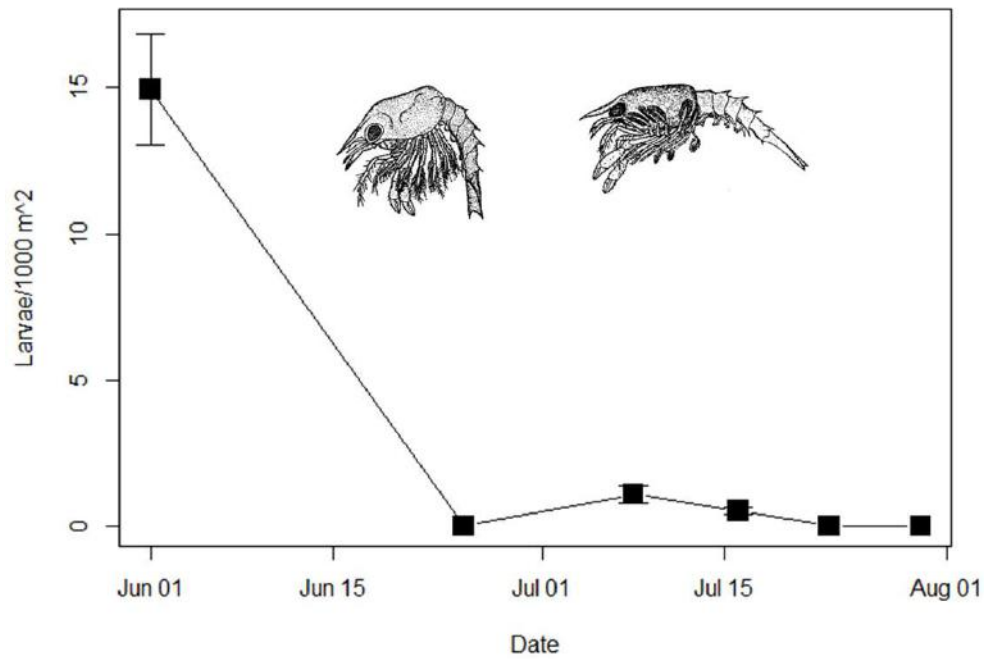


Benthic Sampling

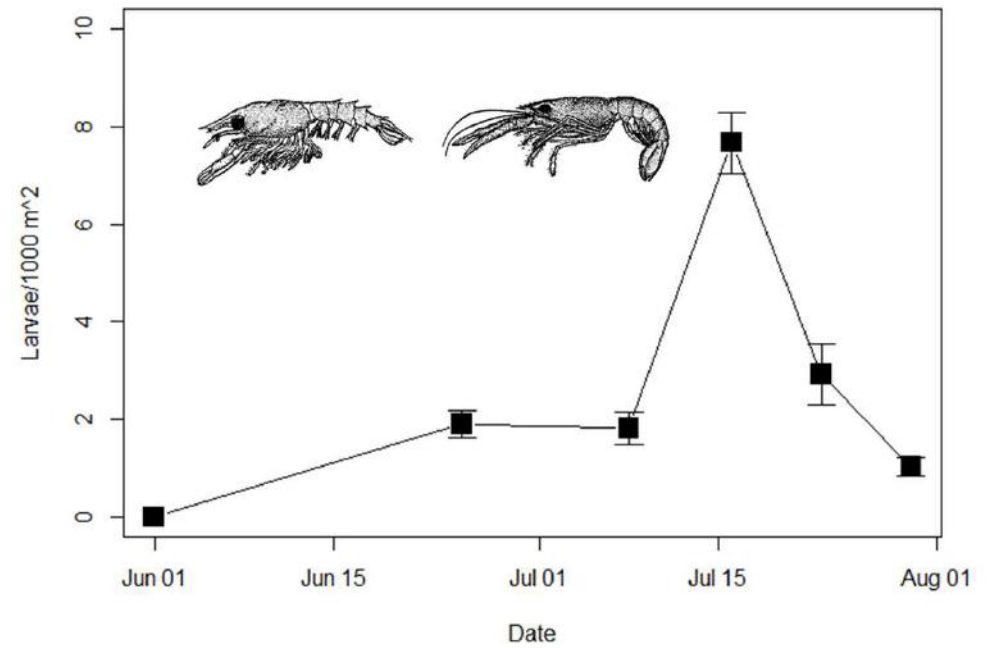


Postlarval Abundances

2021 Stage 1 and 2 Abundances



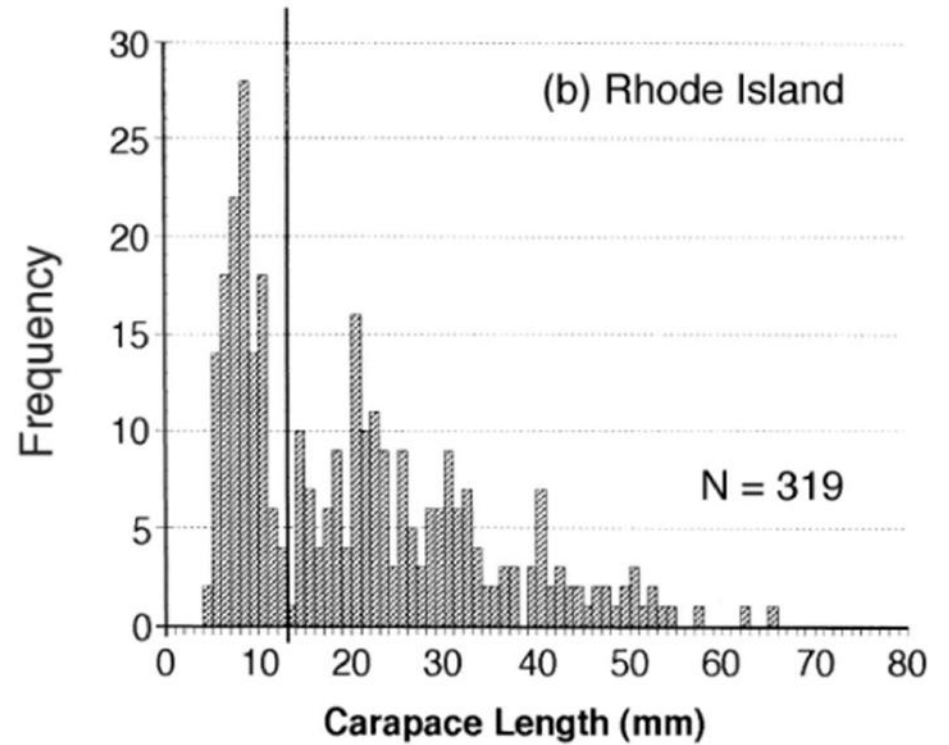
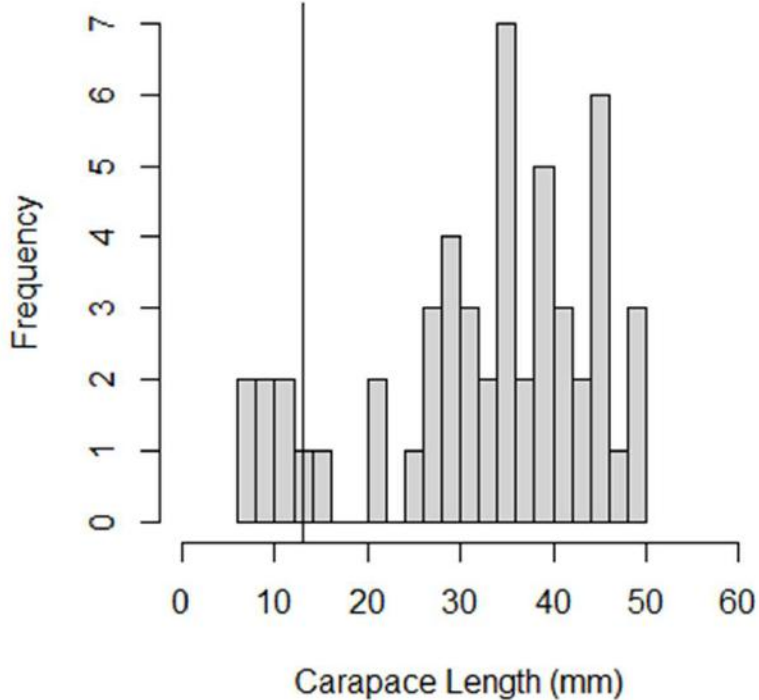
2021 Stage 3 and 4 Abundances



Young-of-year/Juvenile Abundances



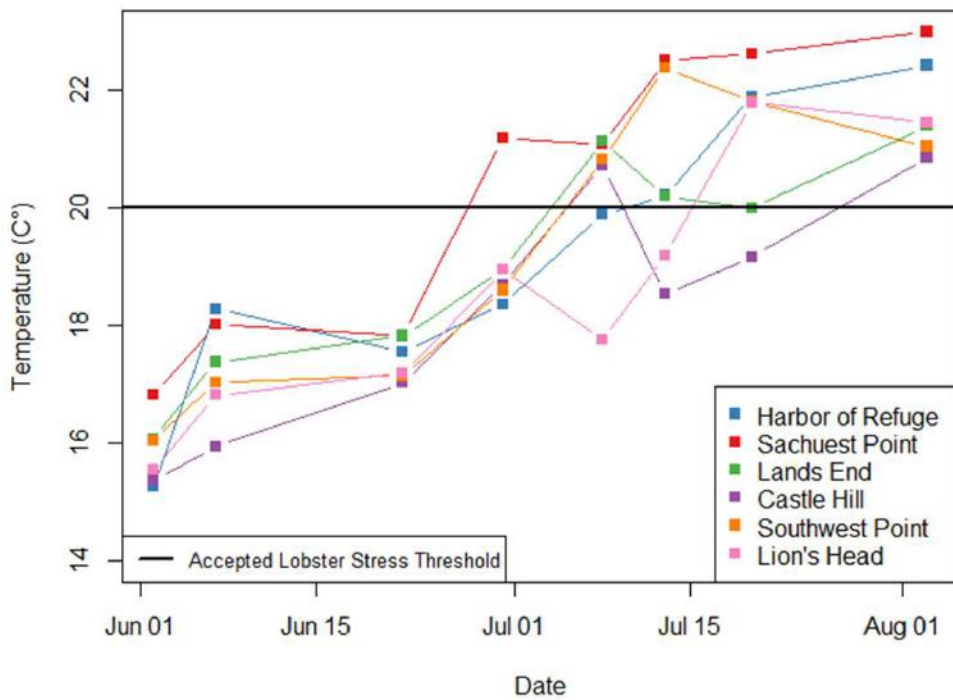
Homarus americanus



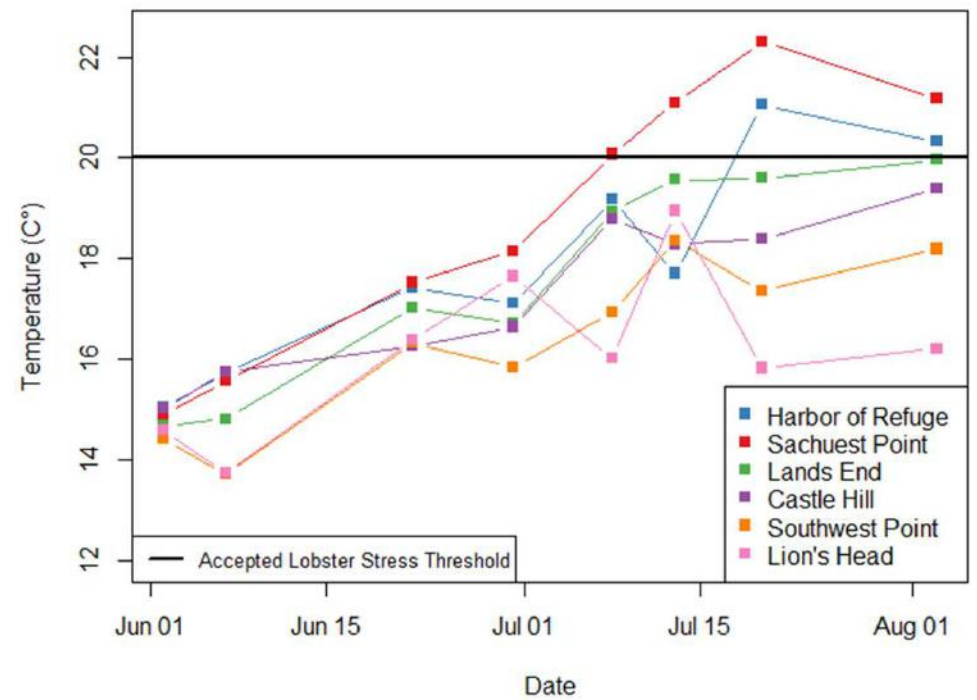
RIDEM Section 3.97
Monitoring

Climate Data

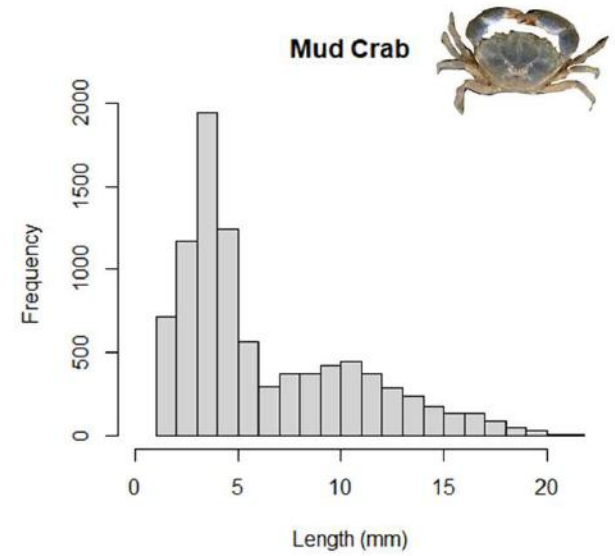
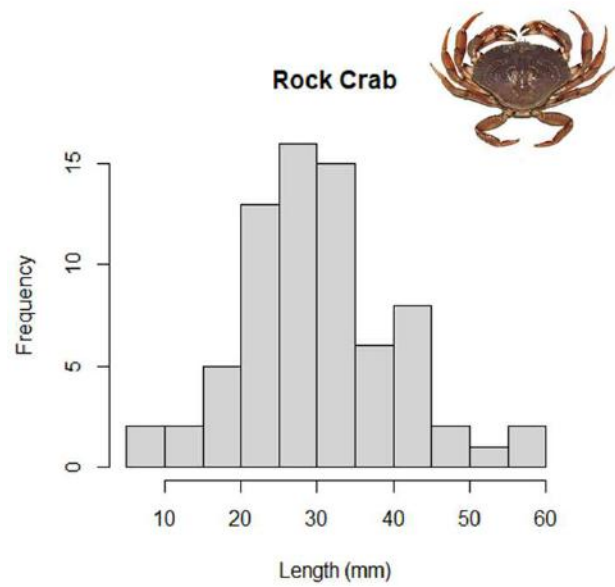
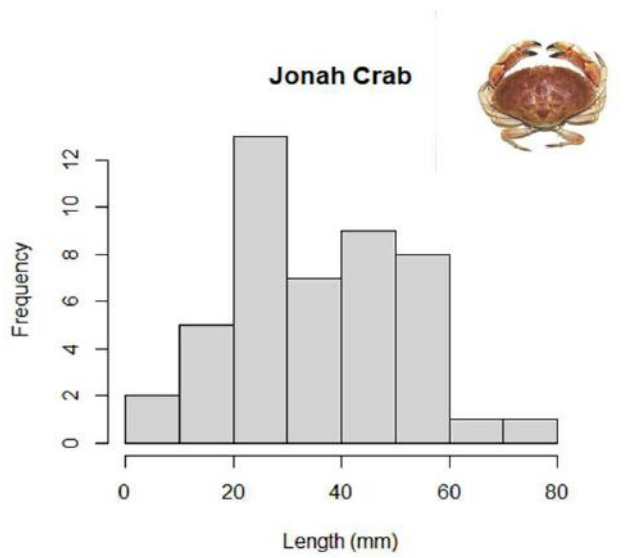
2022 Surface Temperatures



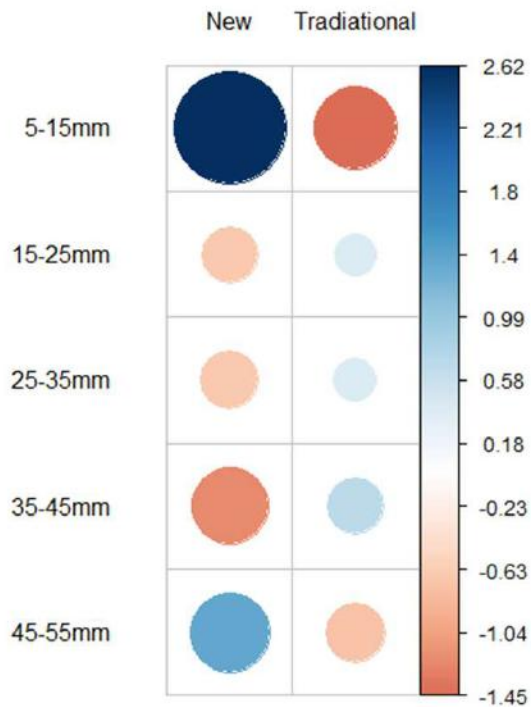
2022 Bottom Temperatures



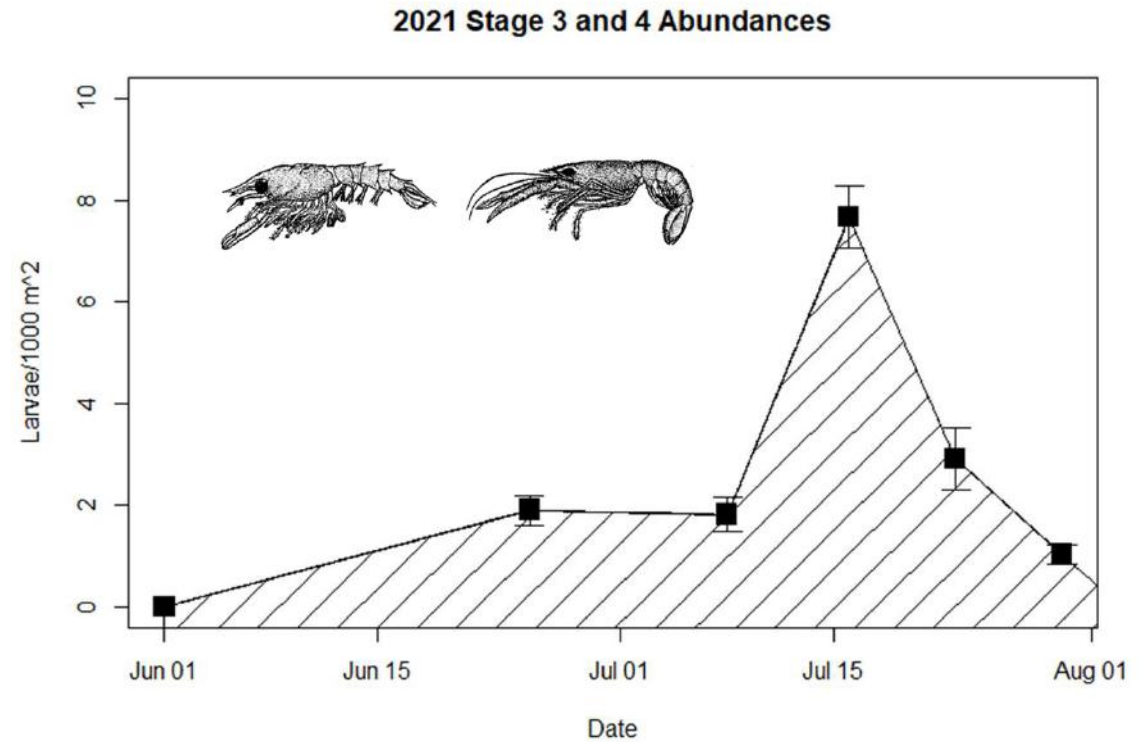
Additional Benthic Species



Future Directions - Continue Exploring the Data



2-way Chi-squared residual plot for New vs. Traditional Trap Type



Potentially fit polynomial equation and integrate under the curve

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Questions?

