

# PEARL Blue Crab Survey: Analysis on Size and Environmental Factors

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# *Callinectes sapidus* – ‘Beautiful Savory Swimmer’!!

## Appearance



## Distribution

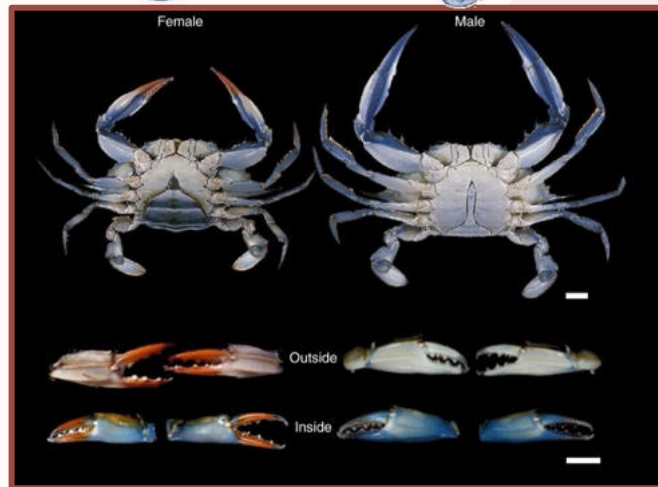
- ❖ Western Atlantic Basin (range from Massachusetts to Uruguay)

## Economic Role

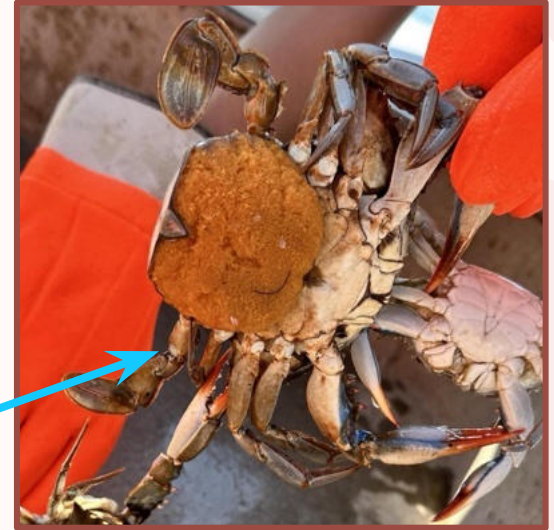
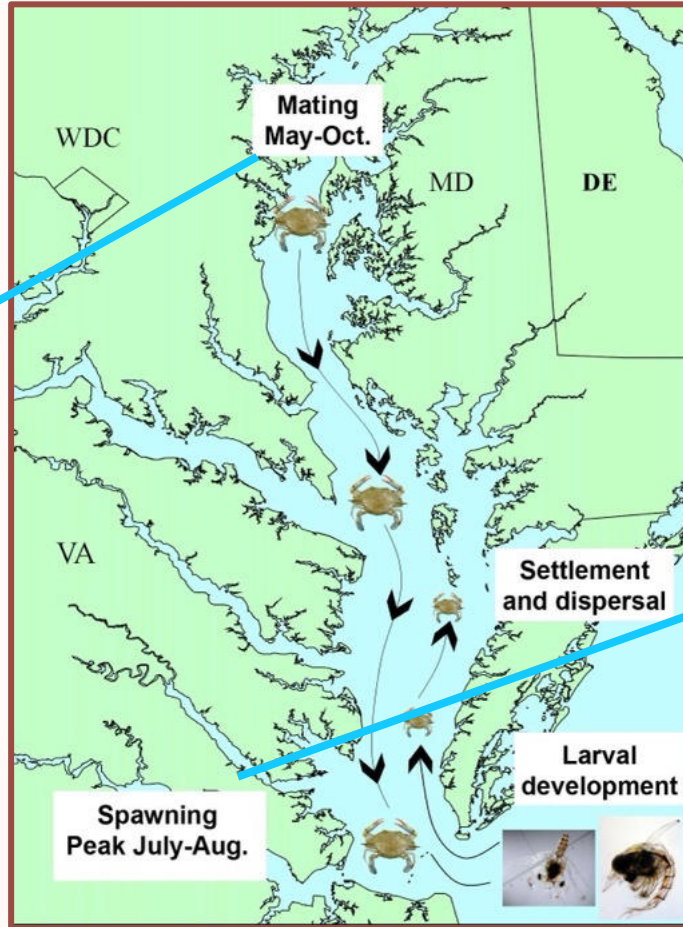
- ❖ Supports one of the Bay's most valuable commercial fisheries

## Ecological Role

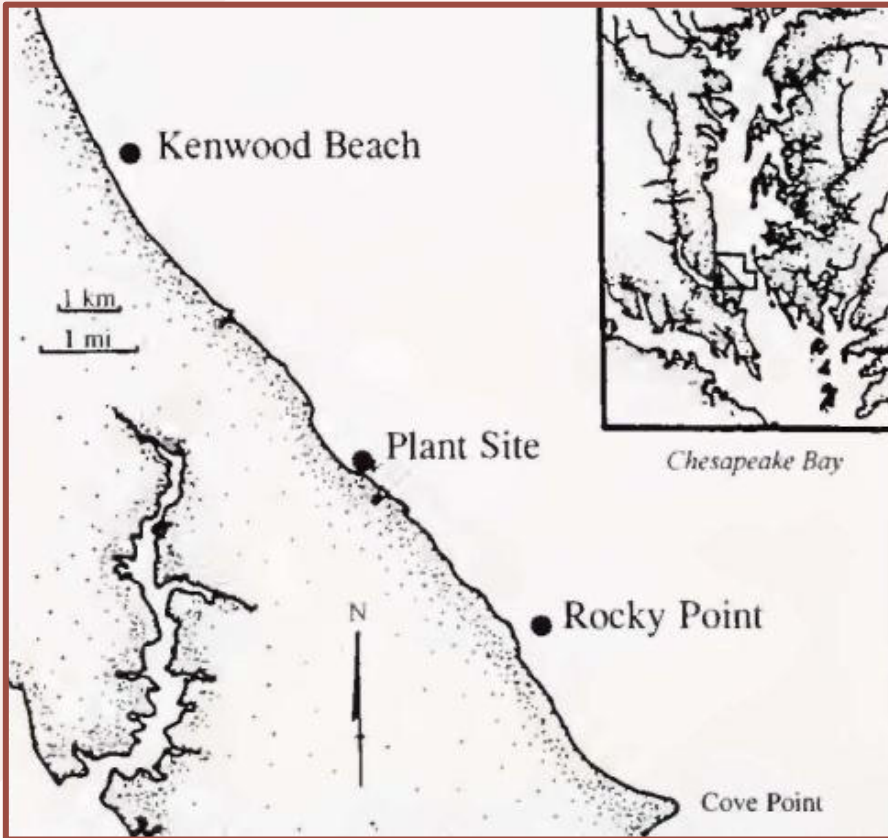
- ❖ Benthic predators and prey for many other species in the Chesapeake Bay



# Life Cycle of the Blue Crab



# Methodology



Collect data for Blue Crab Survey every other week (June-November)

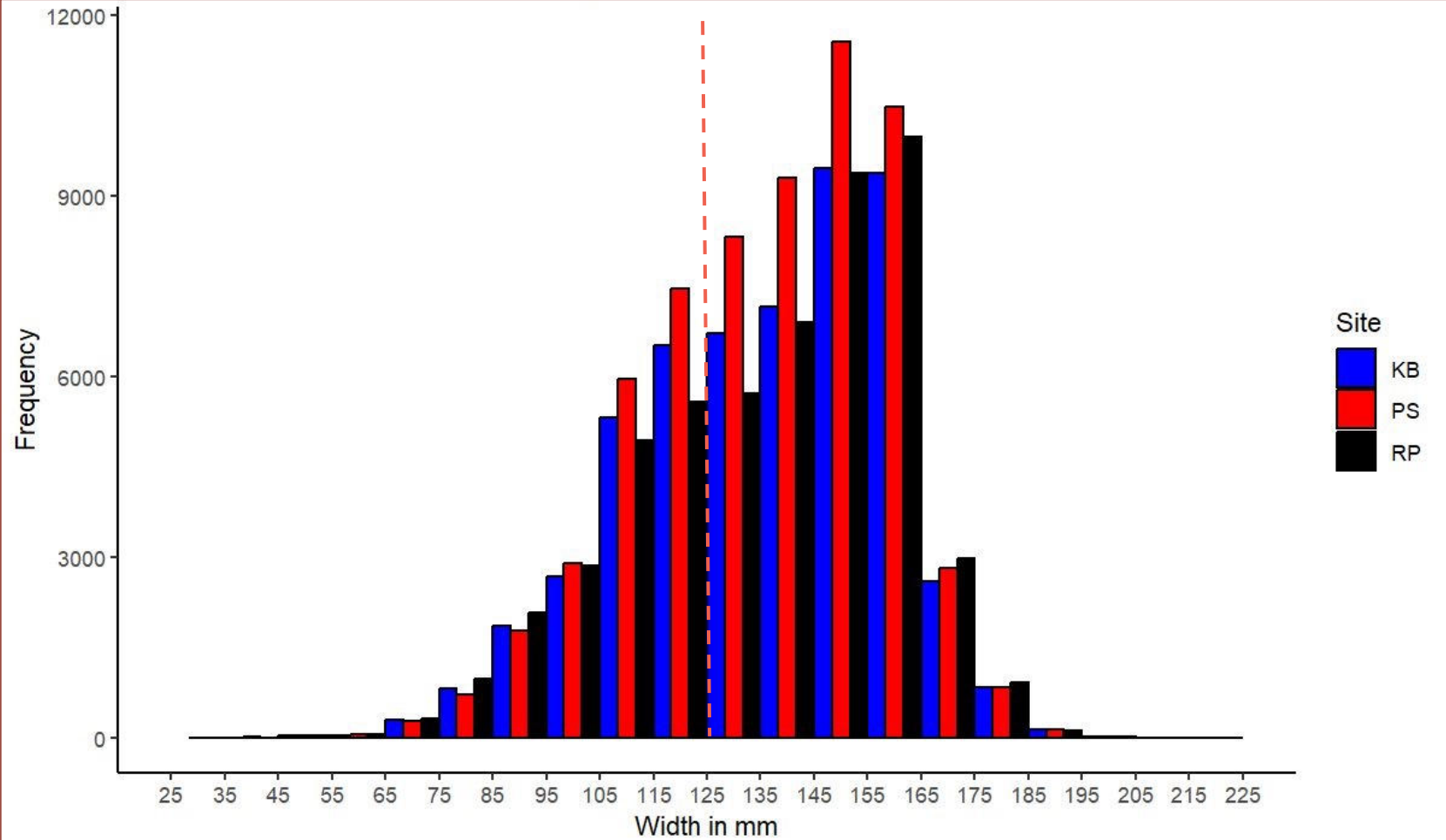


Enter environmental data and merge into existing Blue Crab Survey dataset



Analyze data to investigate environmental effects on blue crab size for each site

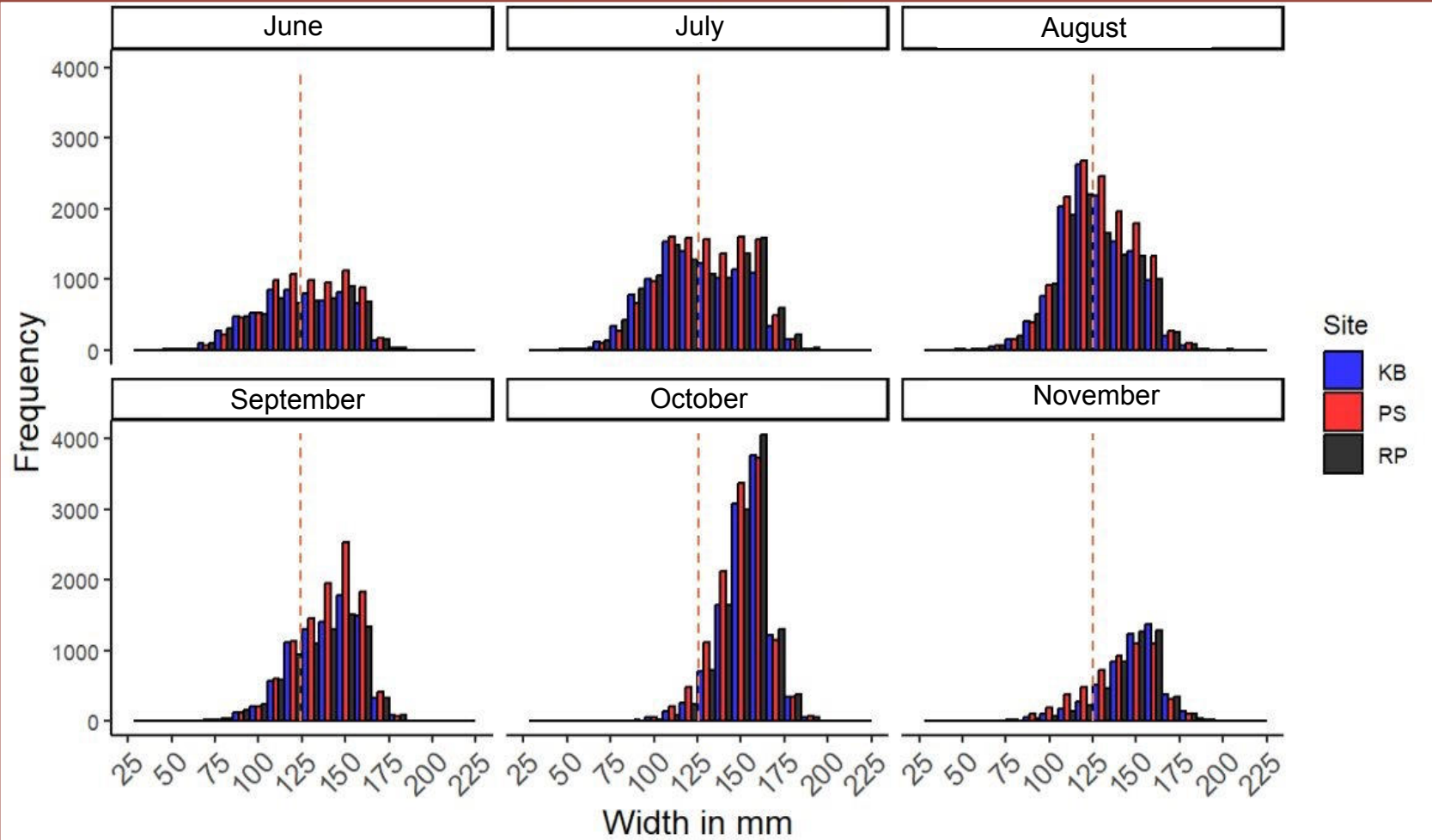
## Blue Crab Size Frequency





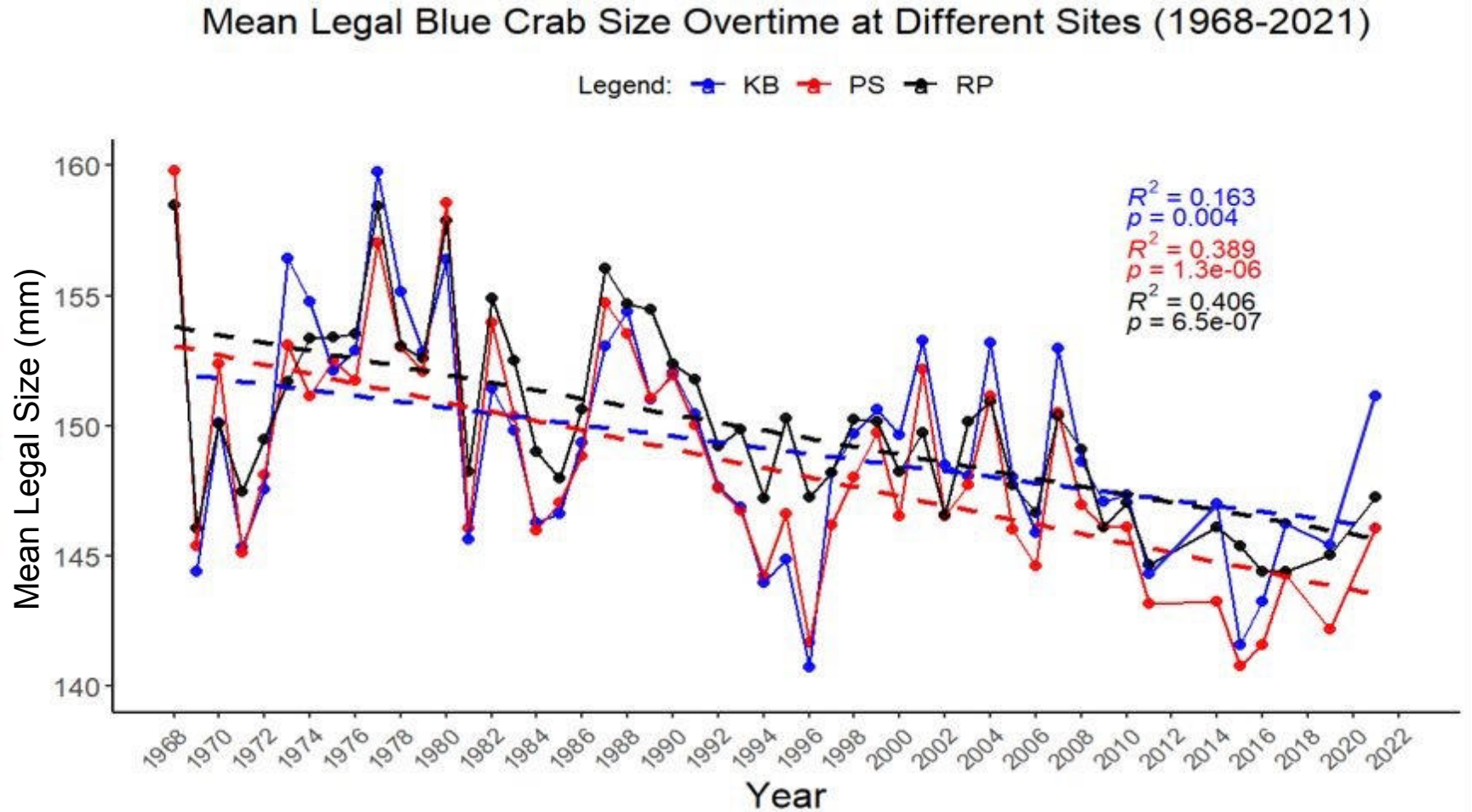
## Results

### Blue Crab Size Frequency By Month



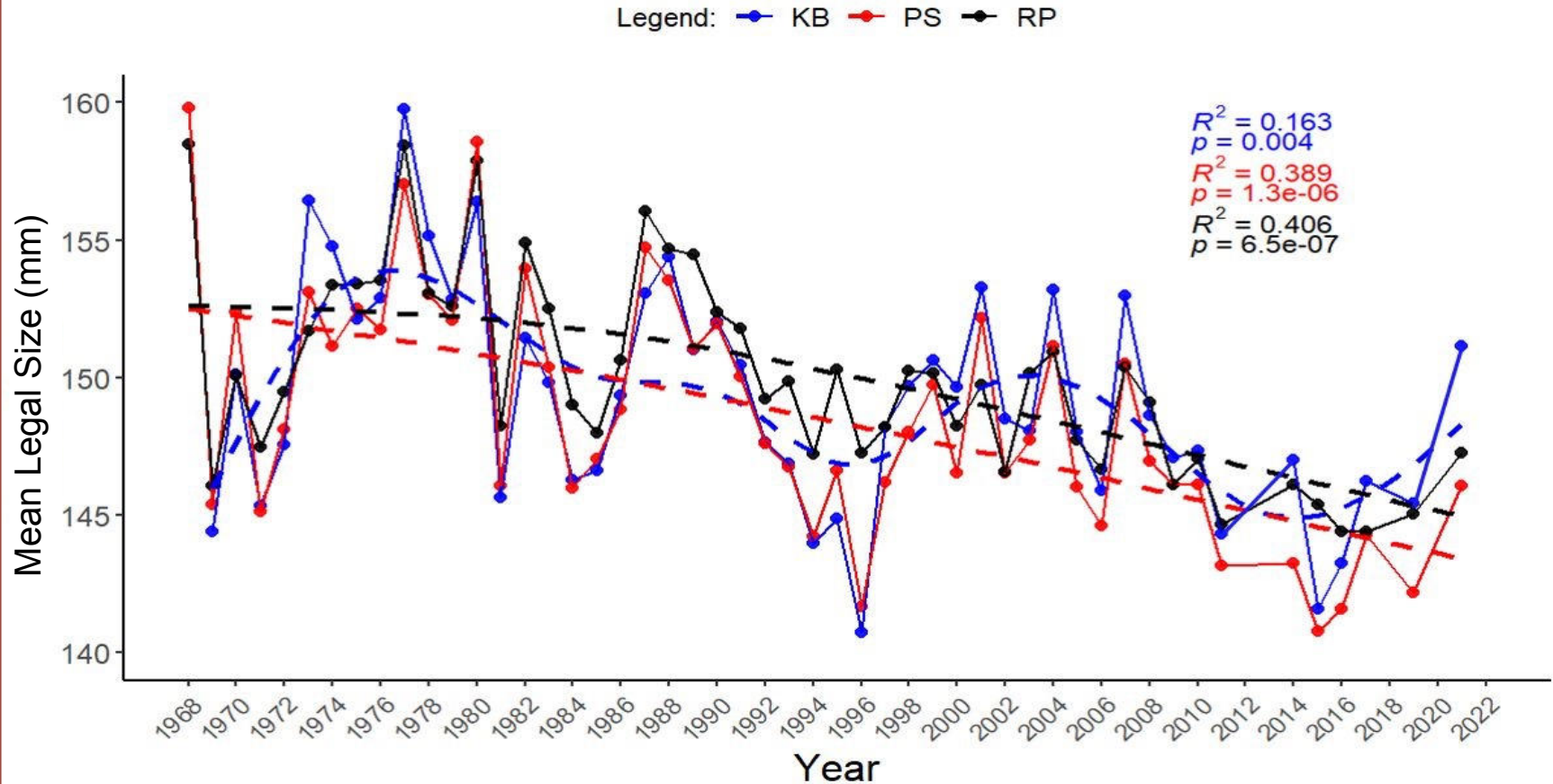
## Results

# Mean Legal Blue Crab Size Overtime (1968 – 2022)



## LOESS Model

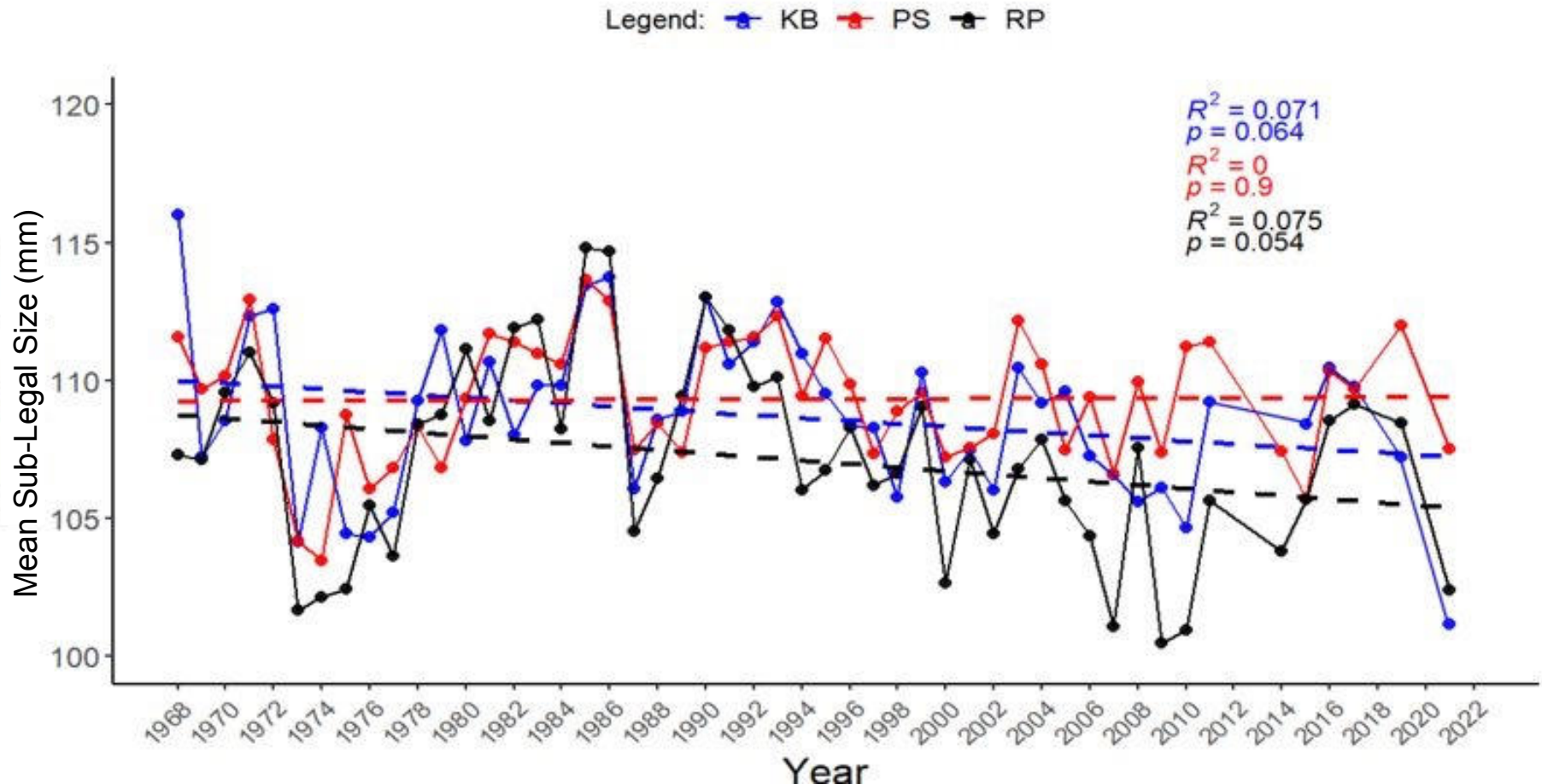
Mean Legal Blue Crab Size Overtime at Different Sites (1968-2021)





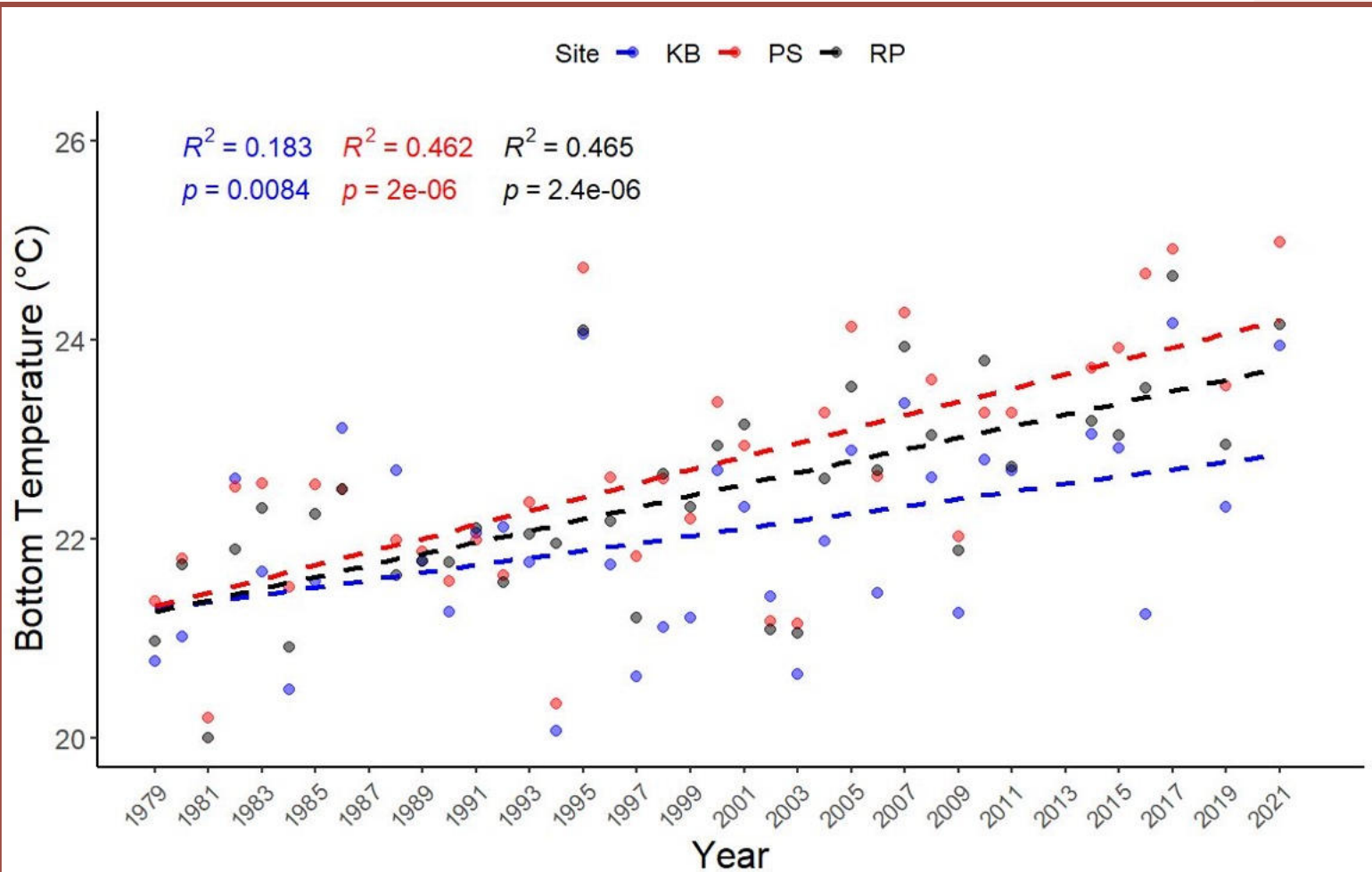
# Results

## Sub-legal Blue Crab Size Overtime (1968 – 2021)

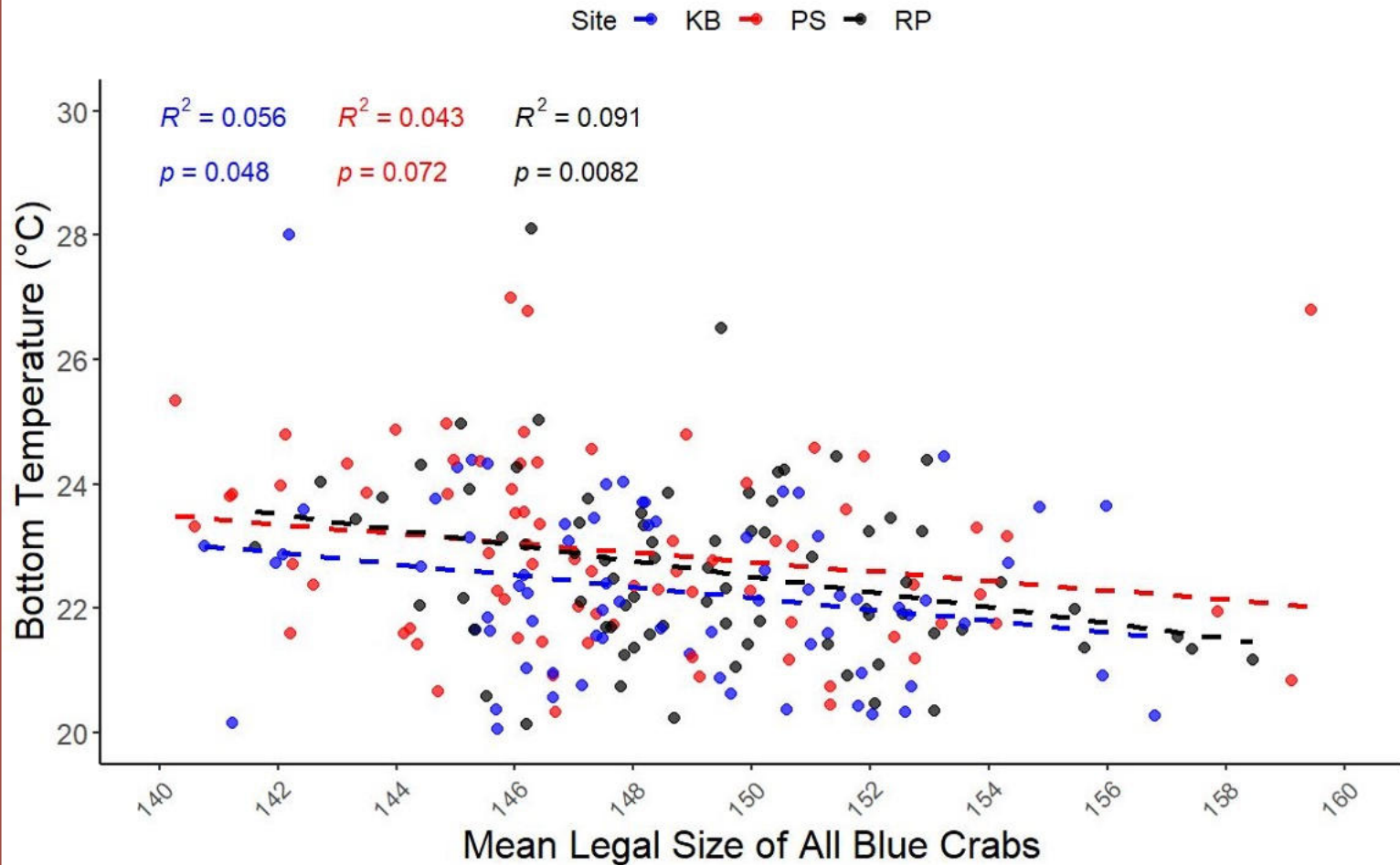


## Results

## Bottom Temperature Overtime

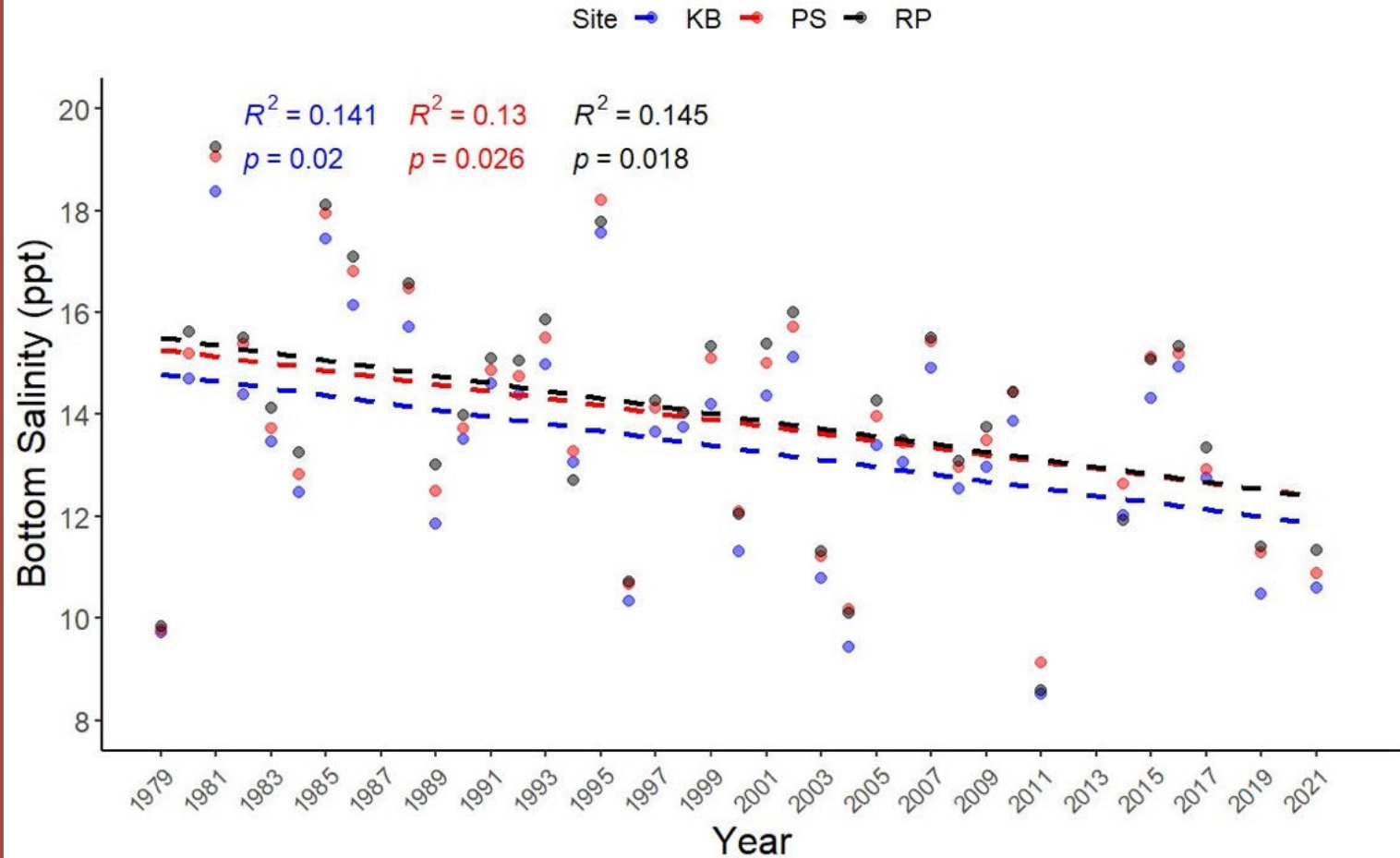


## Bottom Temperature Overtime – Mean Legal Size



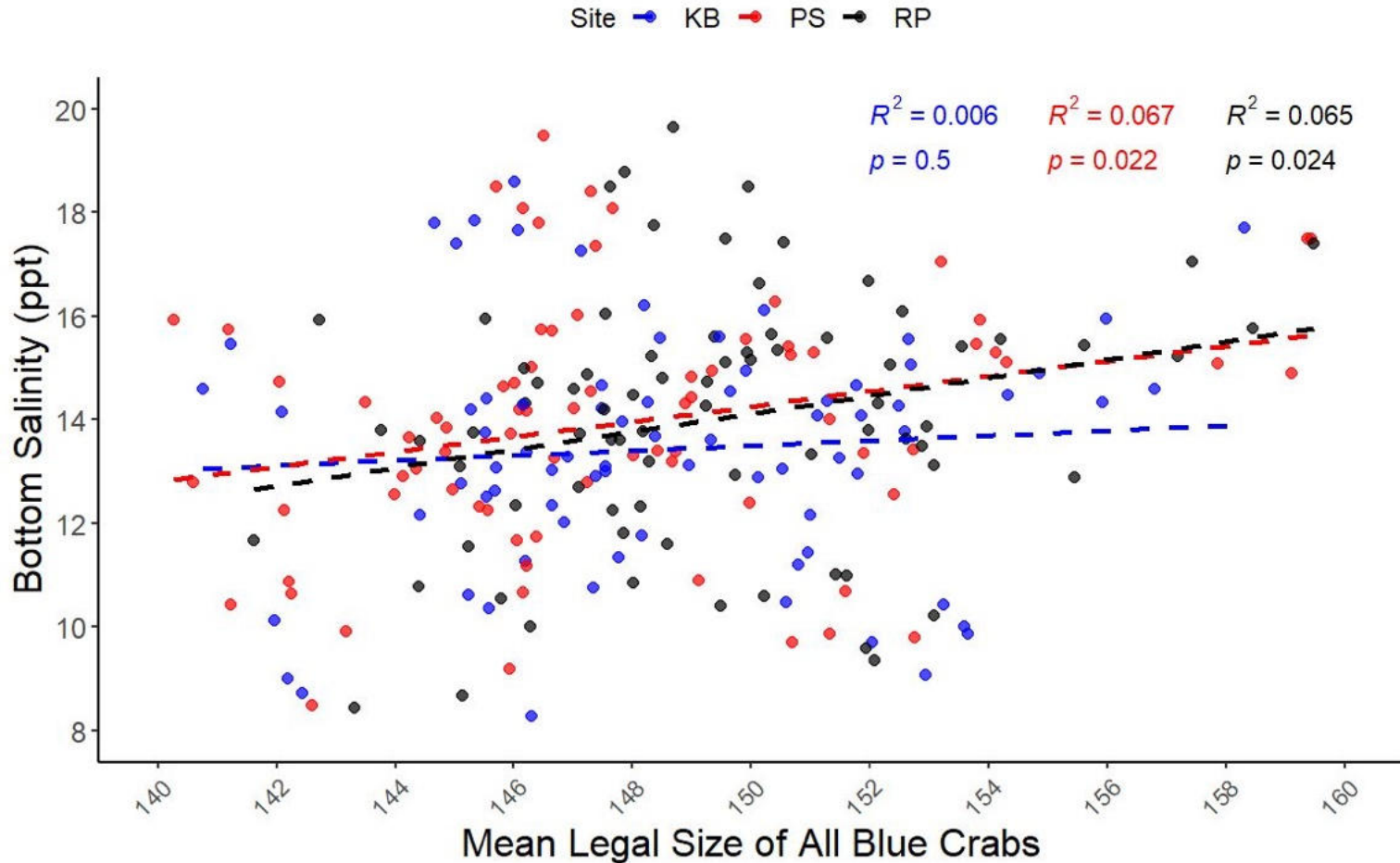
## Results

### Bottom Salinity Overtime



## Results

### Bottom Salinity Overtime – Mean Legal Size





# Summary...

## Legal Crab Size Overtime

- ❖ Significant decline from 1968 – 2021
- ❖ Kenwood Beach site is more variable
- ❖ Most frequent to see larger size crabs in October

## Bottom Temperature

- ❖ Increasing significantly at all sites
- ❖ Larger crabs associate with colder temperatures
- ❖ Smaller crabs associate with warmer temperatures

## Bottom Salinity

- ❖ Decreasing significantly at all sites
- ❖ Larger crabs in higher salinities
- ❖ Smaller crabs in lower salinities

# Next Steps...

- ❖ What's driving the increased variability of size at Kenwood Beach site?
- ❖ **Understand better what factors are driving:**
- ❖ Larger crabs to be associated in waters with higher salinities
- ❖ Larger crabs to be associated in waters with cooler temperatures

# Acknowledgments



My Mentor –  
Dr. Tom Ihde

Coastal  
Operations  
Specialist –  
Randy Feris

For  
Additional  
Support –  
Amanda  
Bevans

My BCS  
Partner –  
Brittney  
Douglas



Thank  
You!!  
Any  
Questions?