



Juvenile Lobster in the Southern Gulf of St. Lawrence: A Baseline Density and Behavioural Survey

Ryan Bergman¹, Aidan McGowan, Liam Kirkham, James Hanlon, and Russell Wyeth²

Department of Biology, St. Francis Xavier University, Nova Scotia Canada

¹rbergman@stfx.ca ²rwyeth@stfx.ca



Introduction

Juvenile lobster

- 5 – 45 mm carapace length
- Shallow, inshore environments
- Behavioural & habitat changes during growth
- Can be used to monitor fishery stock
- May be disproportionately impacted by climate change



Predictions

- Higher density on rock than sand
 - More shelters on rocky beaches
- Higher density in east than west
 - Rock more common in the east
- Increase in juvenile density over time
- Differences in density are likely to cause differences in behaviour

Scallop Buffer Zone (SBZ)

- Marine protected area
 - Prohibits scallop dragging
- Nearly all coastal environment
- Unclear if SBZ will affect juveniles
 - Not surveyed prior to creation
 - Continued monitoring important

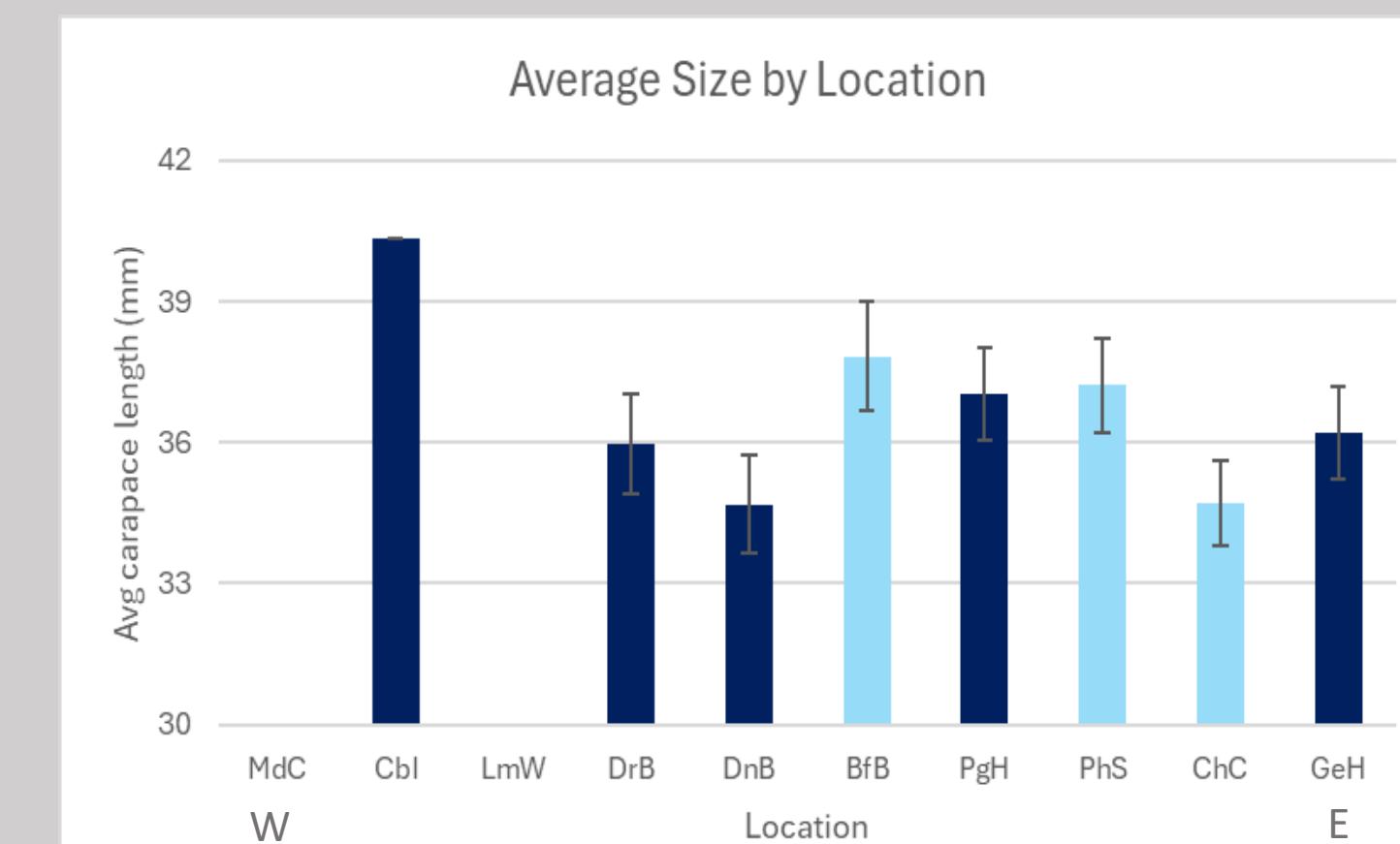
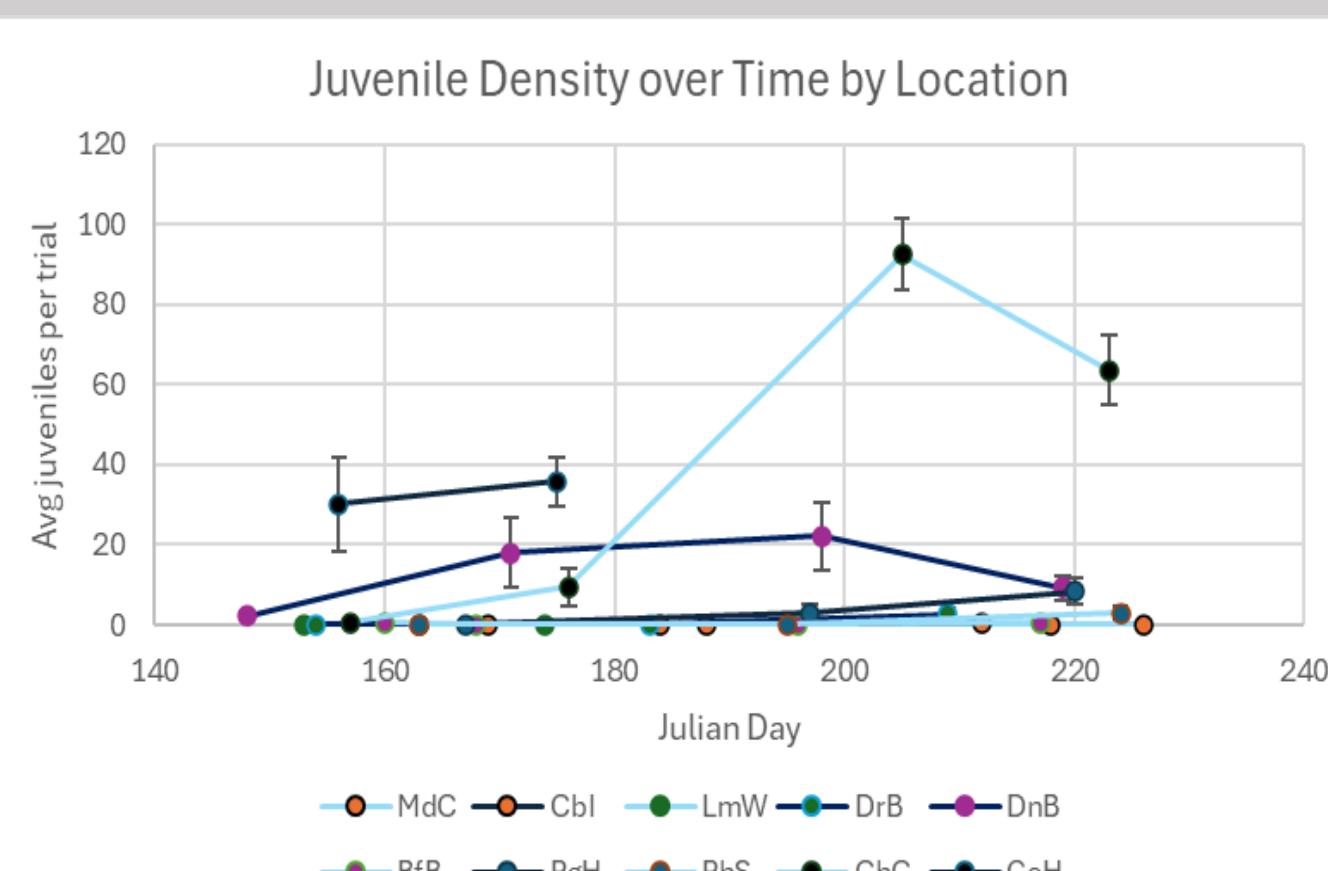
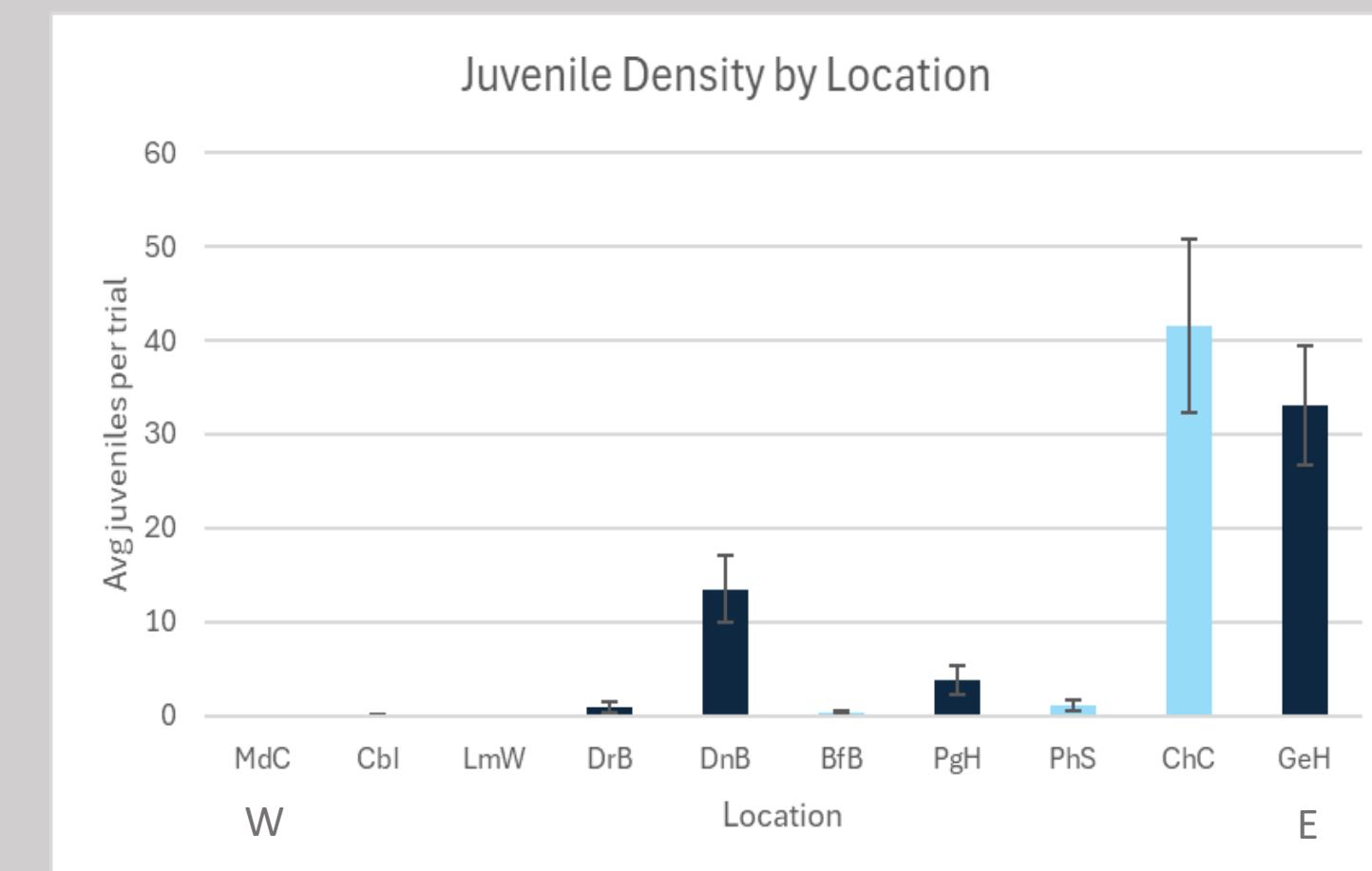
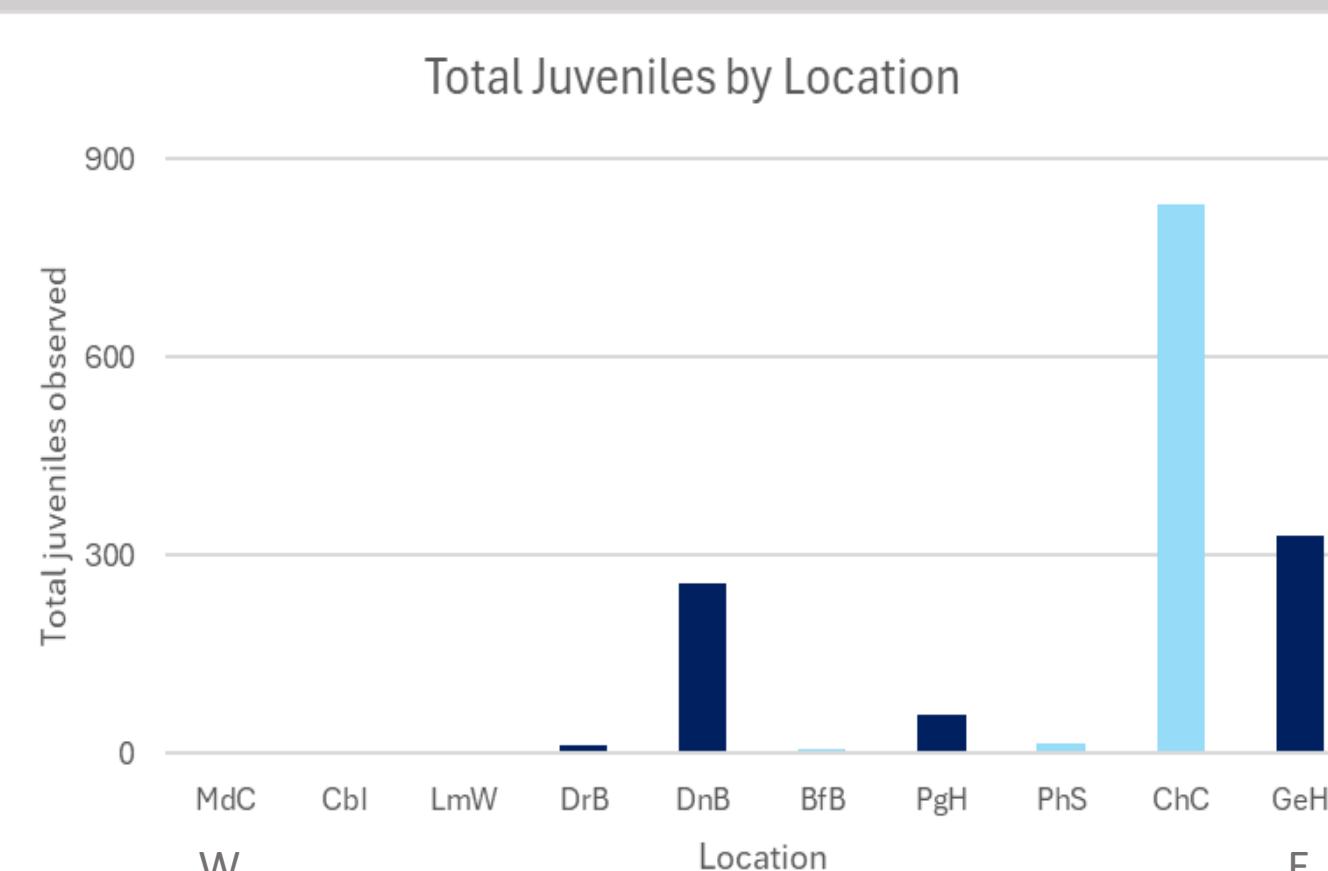
Objective

Compare baited remote underwater (BRUV) observations of juvenile *H. americanus* across the Southern Gulf of St. Lawrence

Hypothesis

Differences in the relative density and behaviour of juvenile lobsters exist across locations, substrate types, and over time

Results

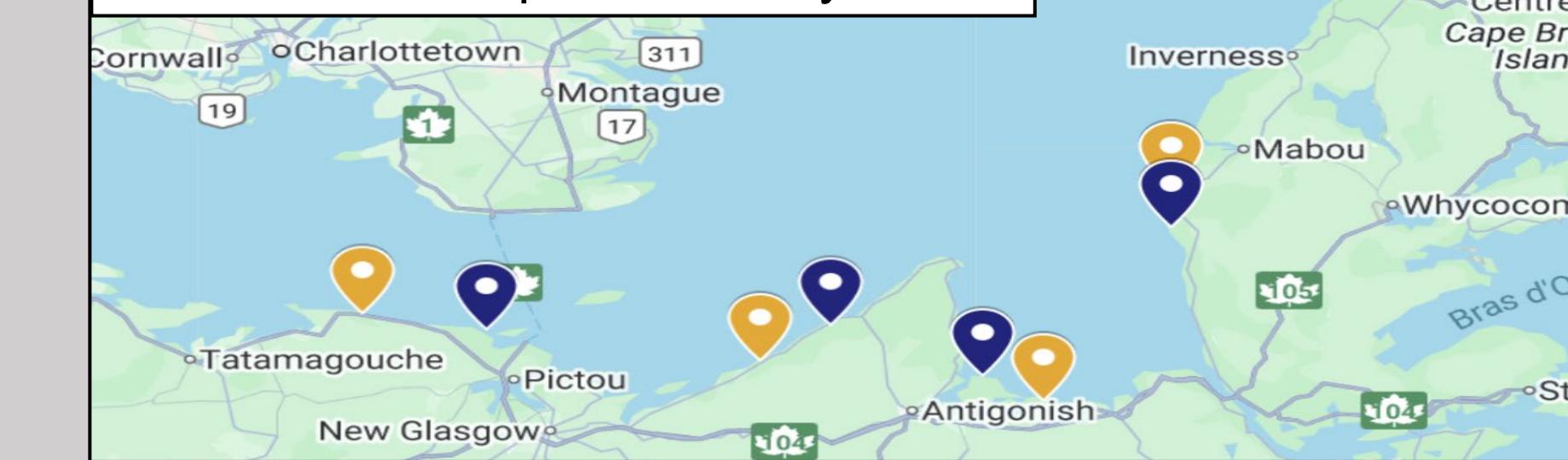


Discussion & Conclusions

- BRUV is effective to study juveniles
- Higher juvenile density on rock than sand, with some exceptions
- Higher juvenile density in the east, with some exceptions
- Juvenile density increases over the summer
- No significant trend in juvenile size across substrates or locations

Methods

Ten beaches were used to conduct the survey. Orange markers represent primarily sandy sites, and blue markers represent rocky sites.



BRUV tripod setup. Redfish bait and Tilt Current Meter are placed under tripods. Cameras record at least four hours of video in 1080p resolution, using a wide view.



Screenshot of video data from BRUV. Each lobster that enters the field of view is considered a new individual. A screenshot is taken each time an individual enters the field of view. Each screenshot contains one lobster that is counted and measured.

Next Steps

- Behavioural analysis using ethogram
 - 'Tail flip' escape response
 - Differences in behaviour will not exist because of size differences
- Continued juvenile monitoring in Southern GSL
 - Population health
 - Vulnerability to climate change