

Local Oyster Stock for Restoration:

**Does Local Adaptation Affect
Outplanting?**

Jake Heare, Joth Davis, Brent Vadopalas, Steven
Roberts

Outline

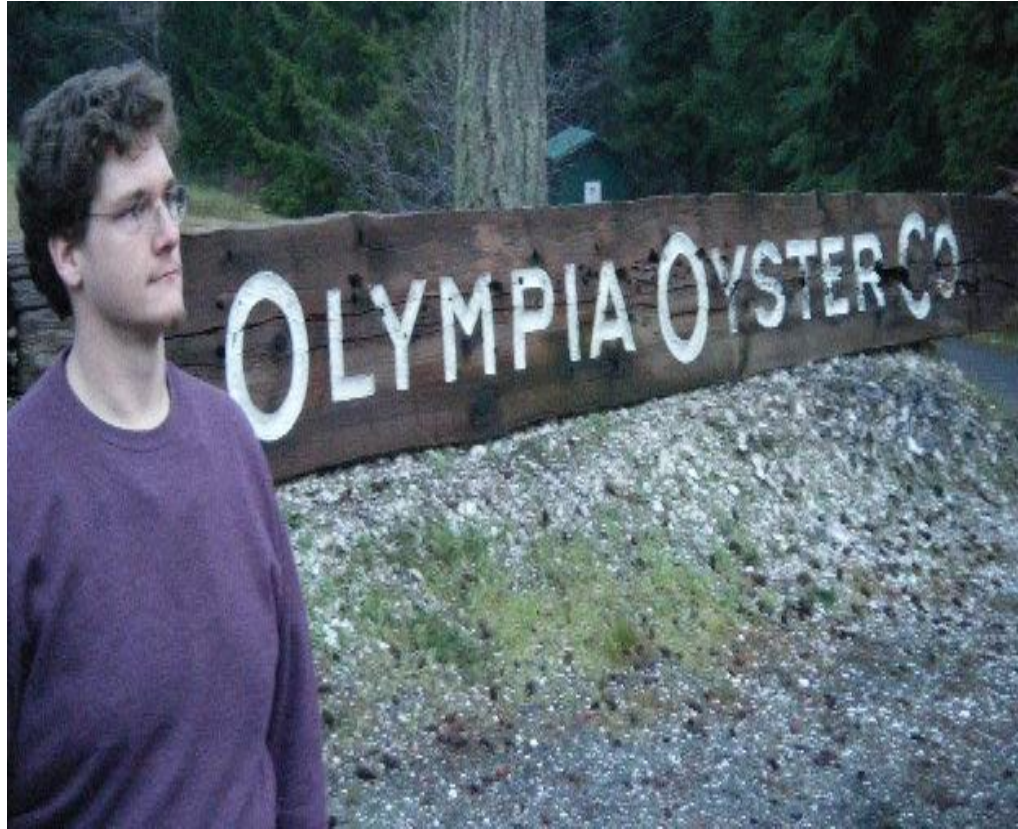
- Why Local Stocks?
 - *O. lurida* history
 - Key Metrics
 - Expectations
- Experiment
 - Brood/Outplant
 - Winter Fieldwork
 - Summer Fieldwork
- Results
 - Mortality
 - Growth
 - Reproduction
- Conclusion
 - Summary
 - Implications
 - Future Work
- Q/A?

Outline

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- Results
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Brief History of Olympia Oysters

1. *Ostrea lurida* Native to Puget Sound
2. Culturally & Commercially Important
3. Heavy Declines
4. Model for Restoration



Why Local Stocks May Be Important

- Assumed Adaptation
- No Scale
- Bay or Region?
- Ensure Success

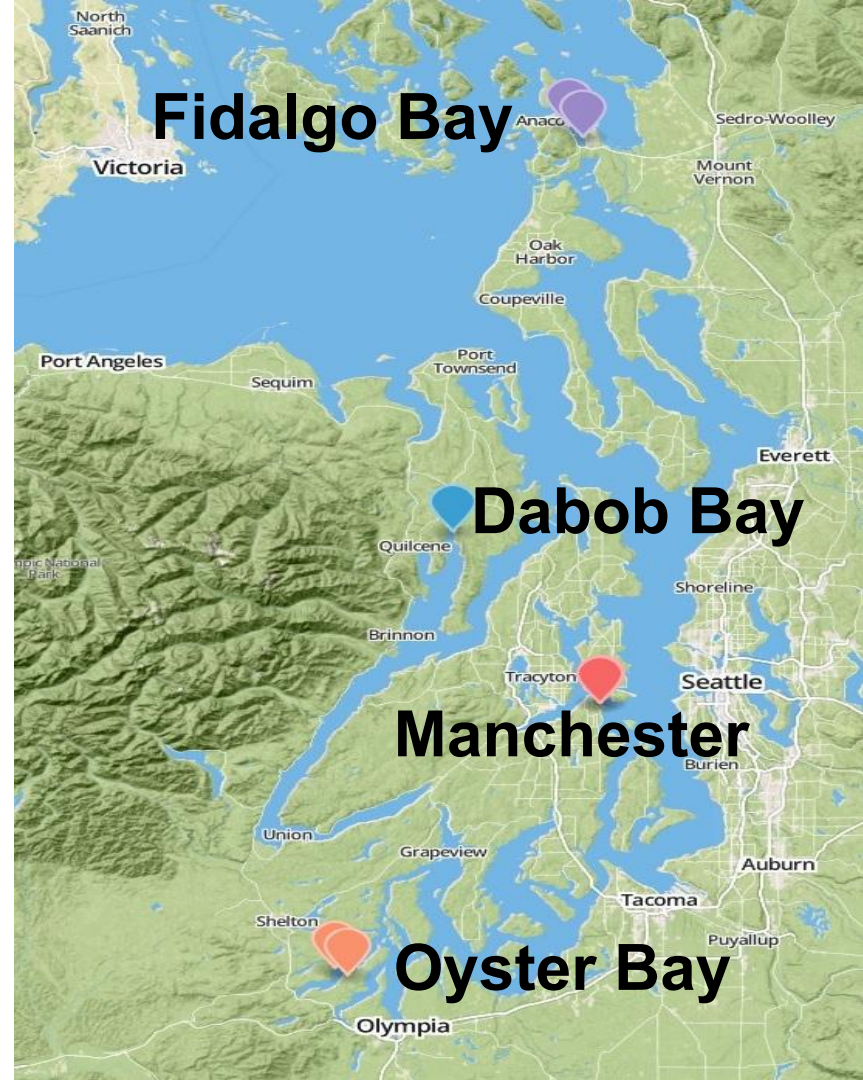


Outline

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Experiment Basics

- Reciprocal Transplant
- Monitor
 - 3 Groups
 - 4 Sites
 - 1 Year
- 3 Home Sites
- 1 Foreign Site



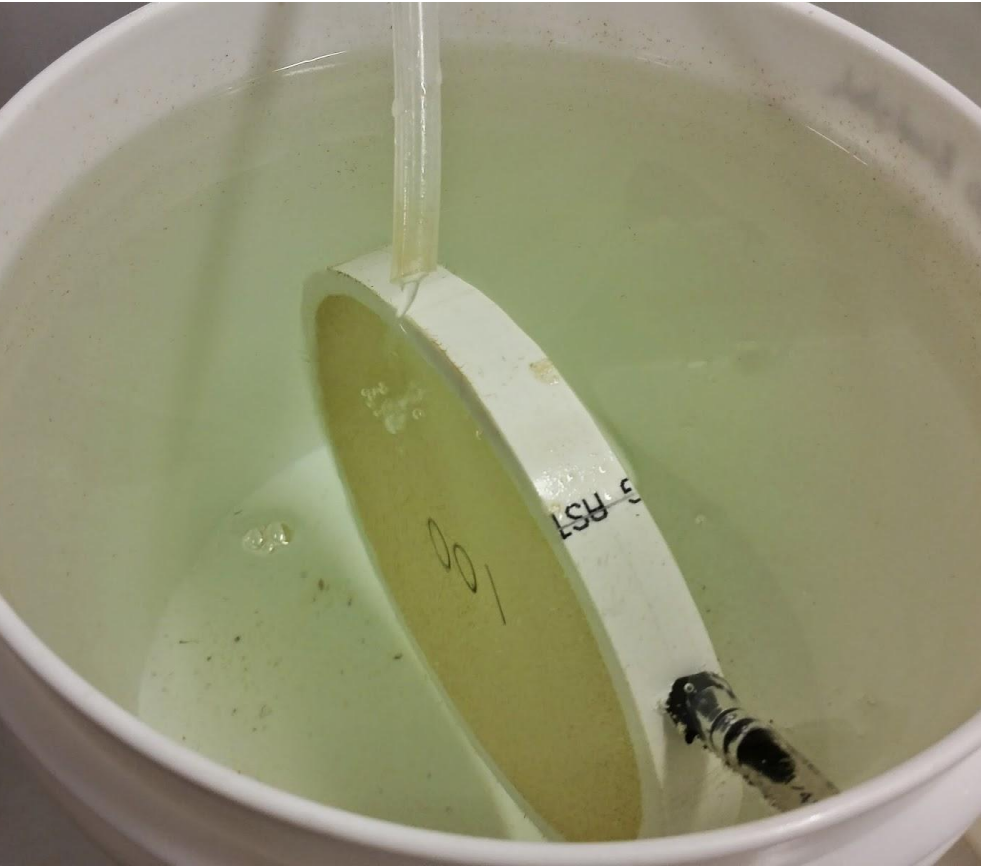
Broodstock and Outplanting

Broodstock

- Collected by PSRF
- Conditioned at Port Gamble
- June 2013



Broodstock and Outplanting



Outplant

- Larvae cultured by PSRF
- Common Garden Conditions
- August 2013

Winter Field Work

- Visited 2-4 Months
- Collected Dead
- Counted Live
- Imaged for Size
- Maintained Trays



Summer Field Work



- 15 Weeks
- Sampled Brooders
- Collected Broods
- Hopkins et al. 1936

Key Metrics

What We Want:

- Fitness Correlates
- Easily Identified
- Monitorable
- Possible Adaptive Advantage

What We Chose:

- Mortality
- Growth
- Reproduction

Expectations

1. Equality

2. Home Field
Advantage

3. Uber-Oyster

4. ???

1. All Groups Equally
Successful

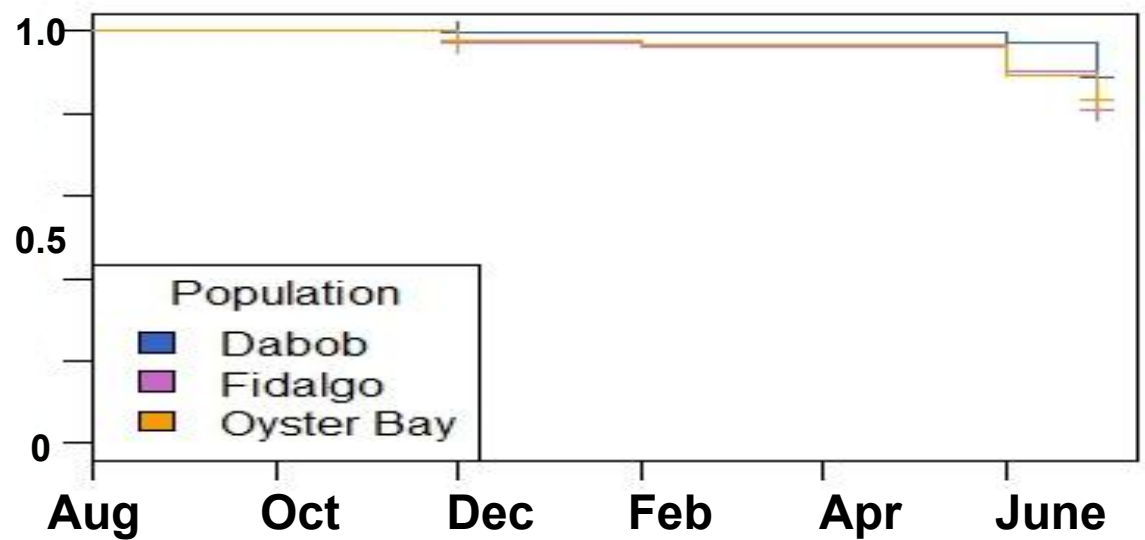
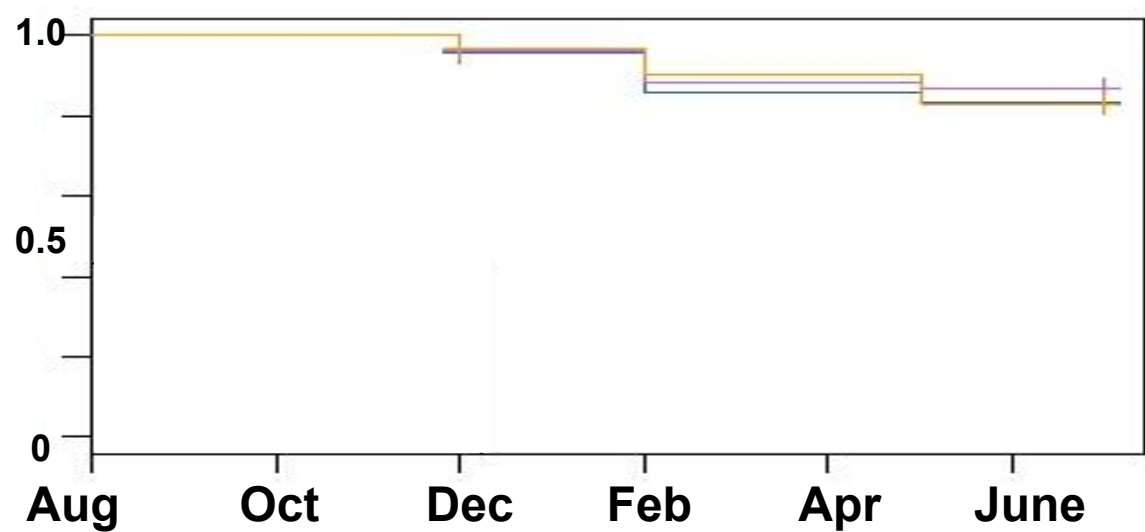
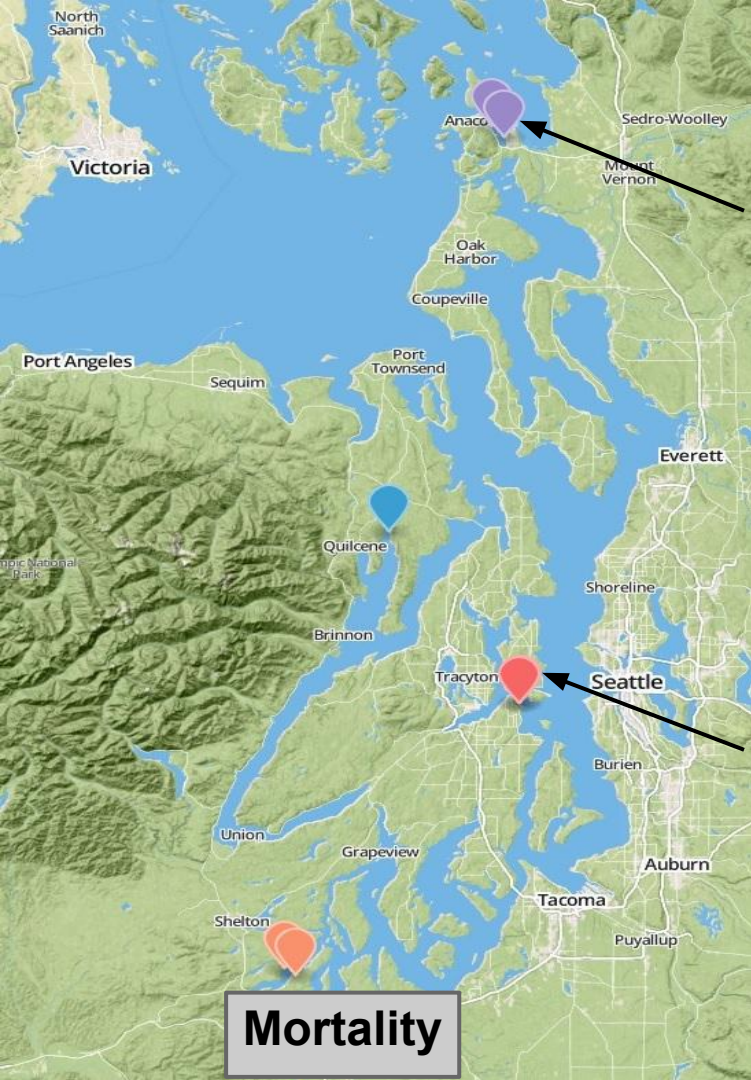
2. Groups Only
Successful at
Home

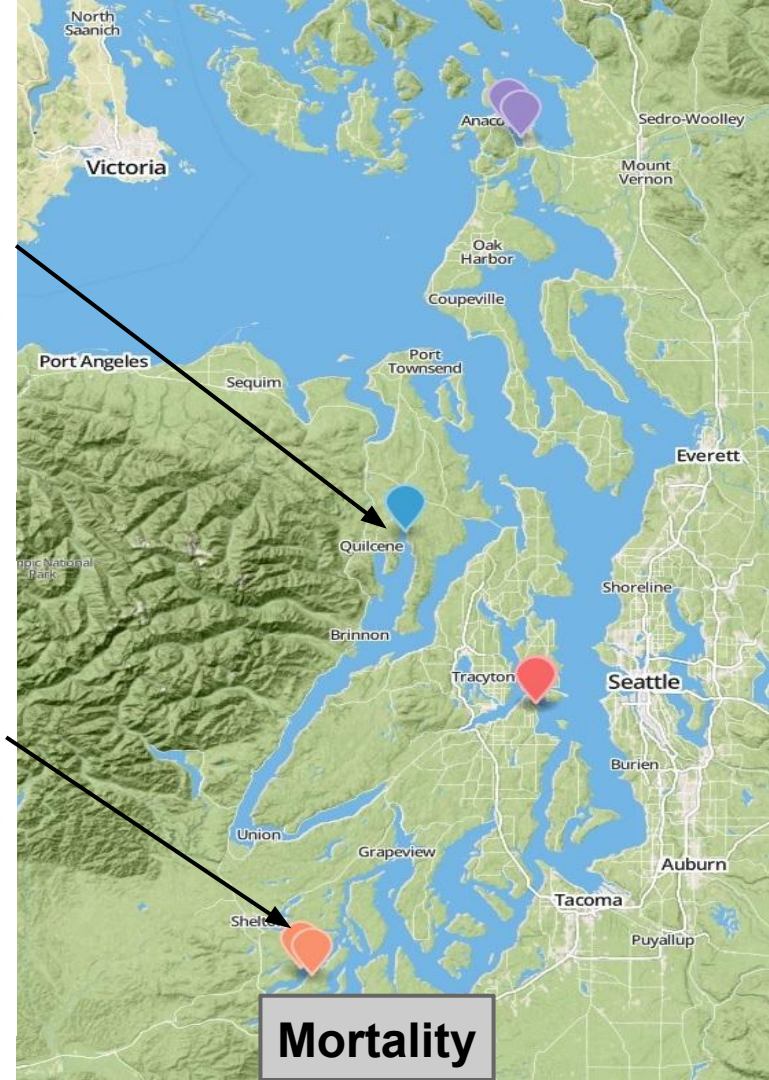
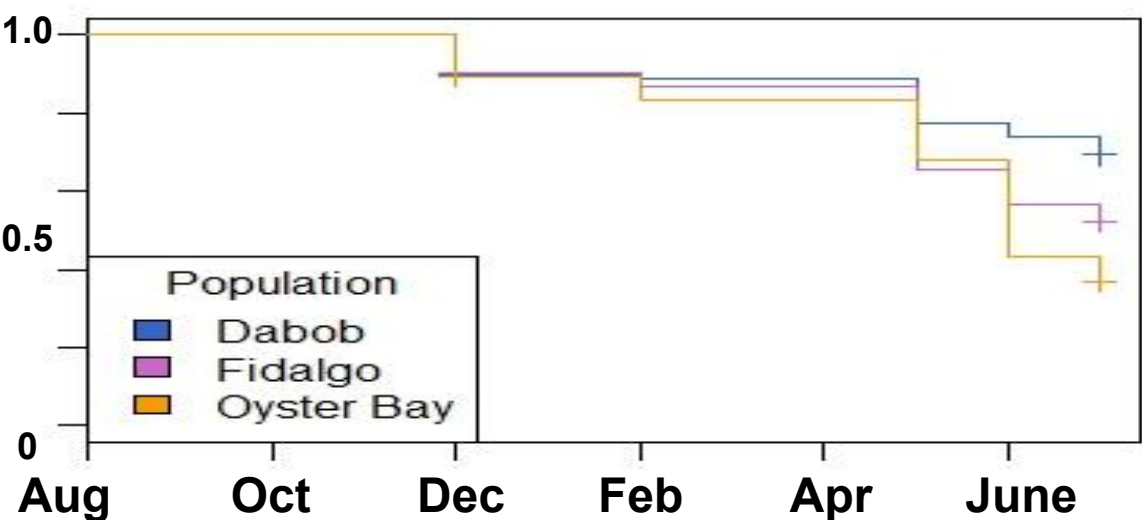
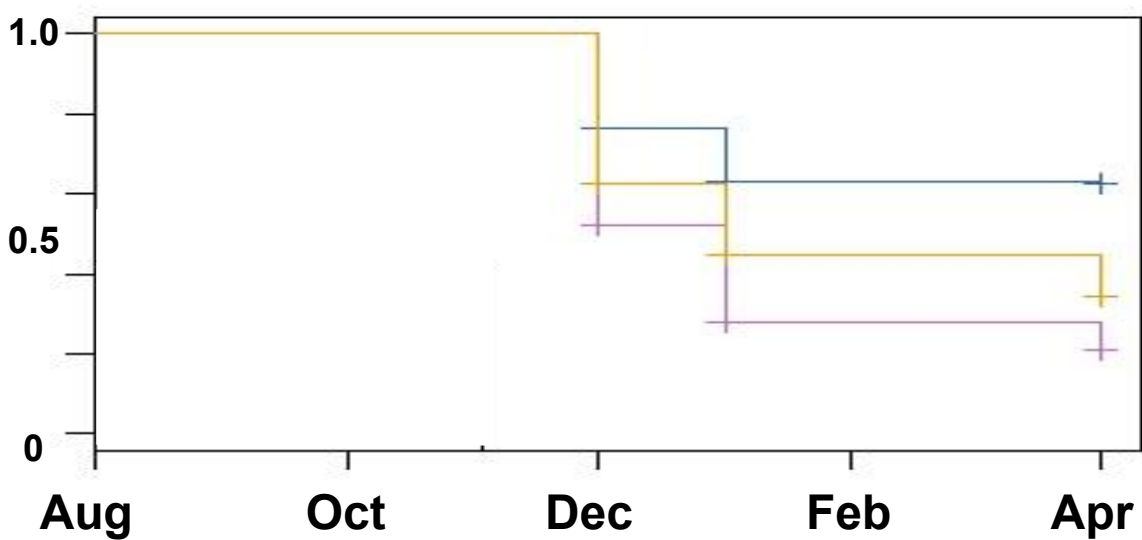
3. One Group
Outperforms

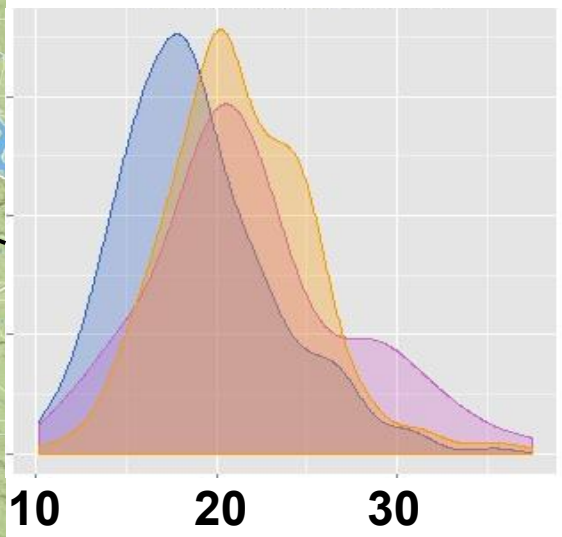
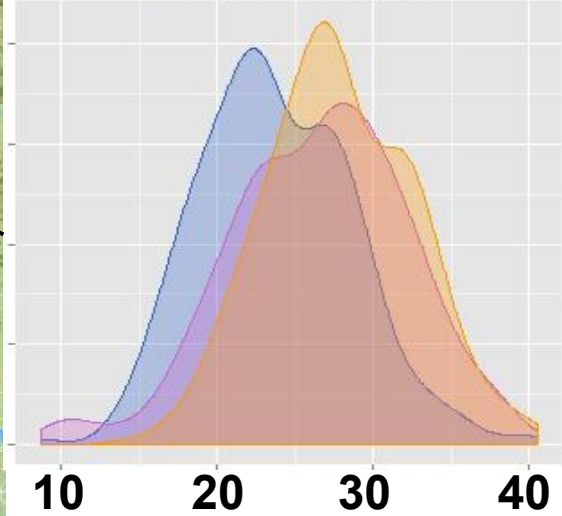
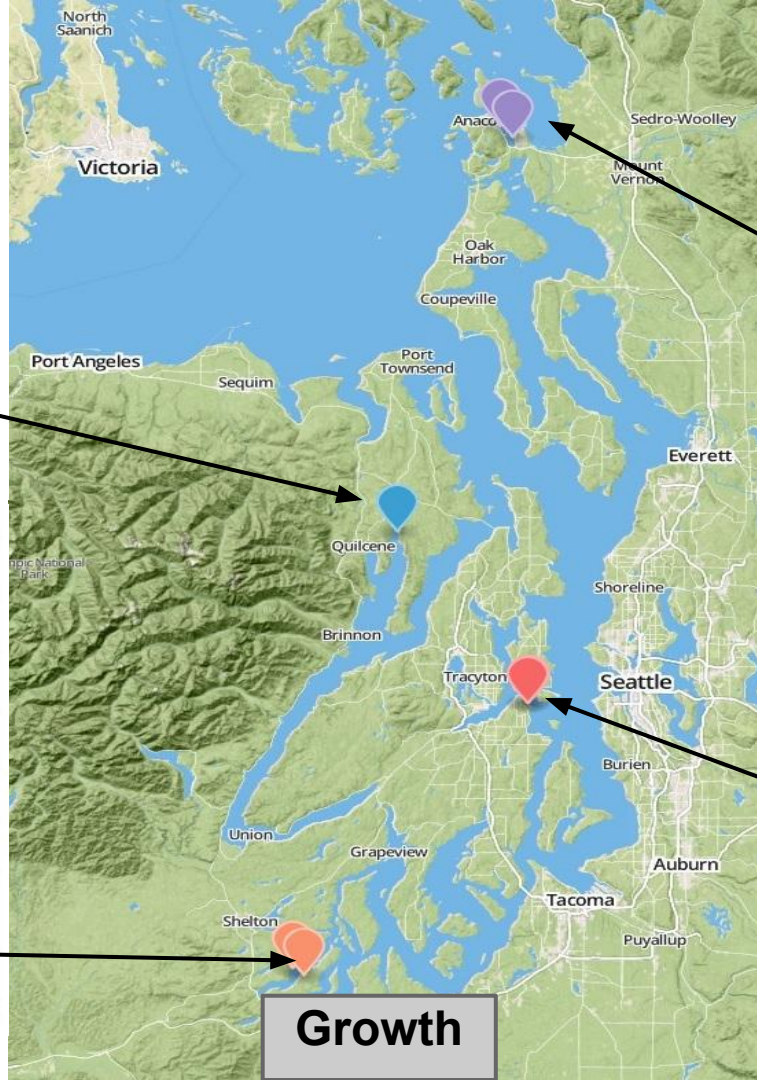
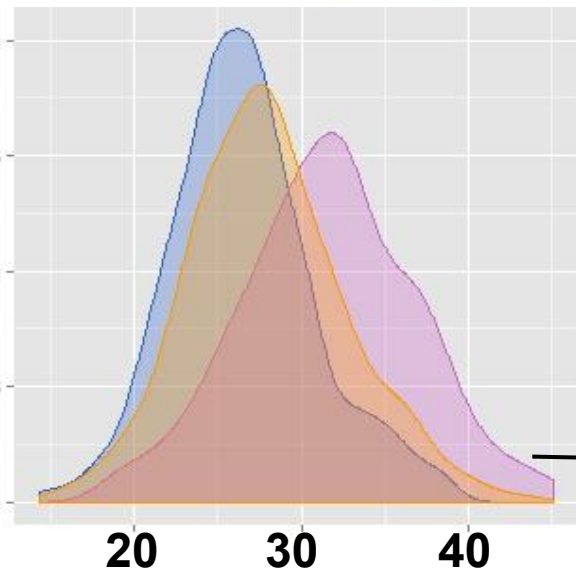
4. Mixed Results

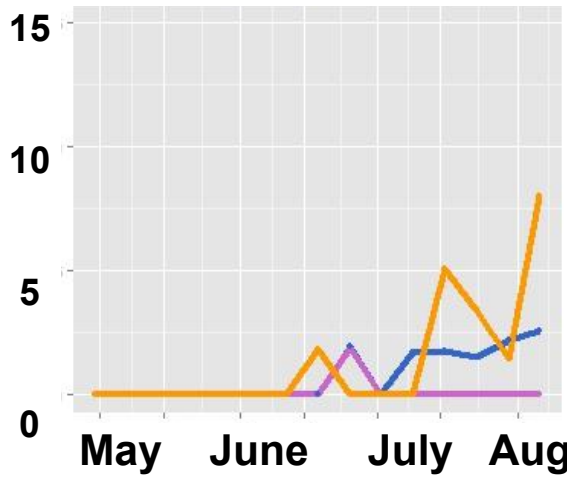
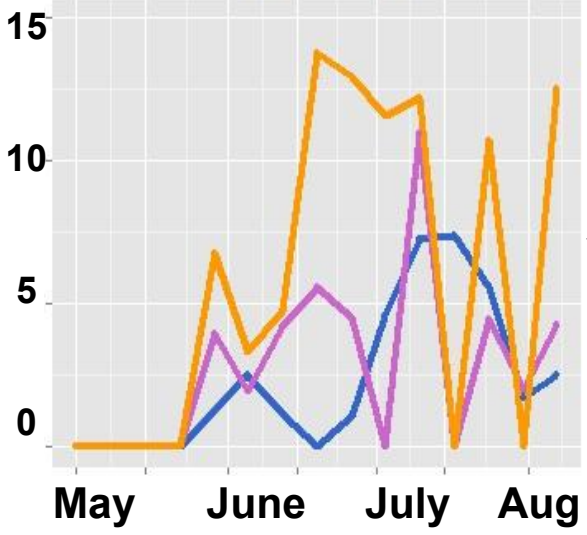
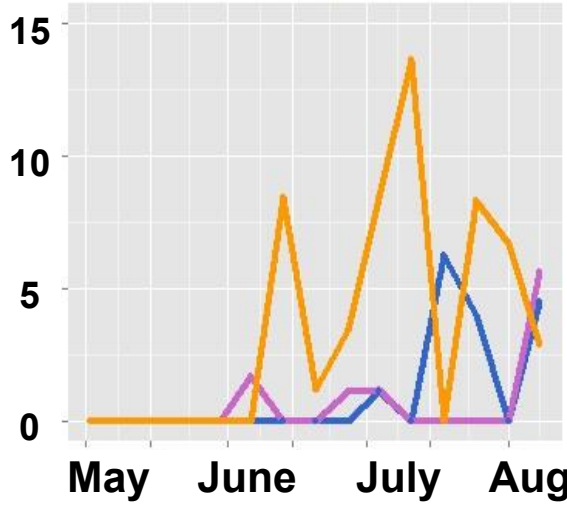
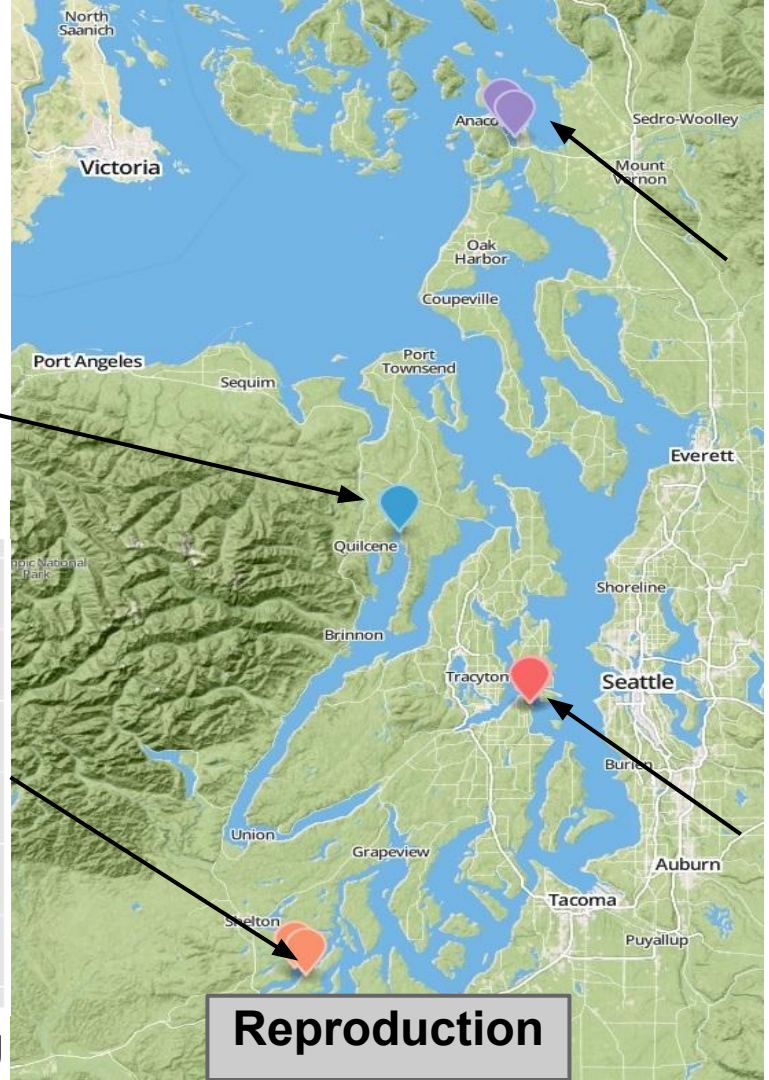
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Summary

- Mortality
 - Dabob Survives Extremes
 - Fidalgo High Mortality in Extremes
- Growth
 - Fidalgo Largest
 - Dabob Smallest
- Reproduction
 - Oyster Bay Most Active
 - Dabob Least Active



Expectations Vs. Reality

1. Equality?

1. No

2. Home Field Advantage?

2. No

3. Uber-Oyster?

3. No

4. ???

4. No Clear Winner/Loser?

Implications

If:

1. Equality
2. Homefield Advantage
3. Uber-Oyster
4. ???

Then:

1. All Work
2. Select Based on Site
3. Easy Choice
4. Best Guess

Future Research

Population Genomics



Fecundity



Acknowledgements



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AQUATIC
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QUESTIONS!

SPECIAL
THANKS
TO
JACK
!!!!!!



