

2018-2019 RCN report



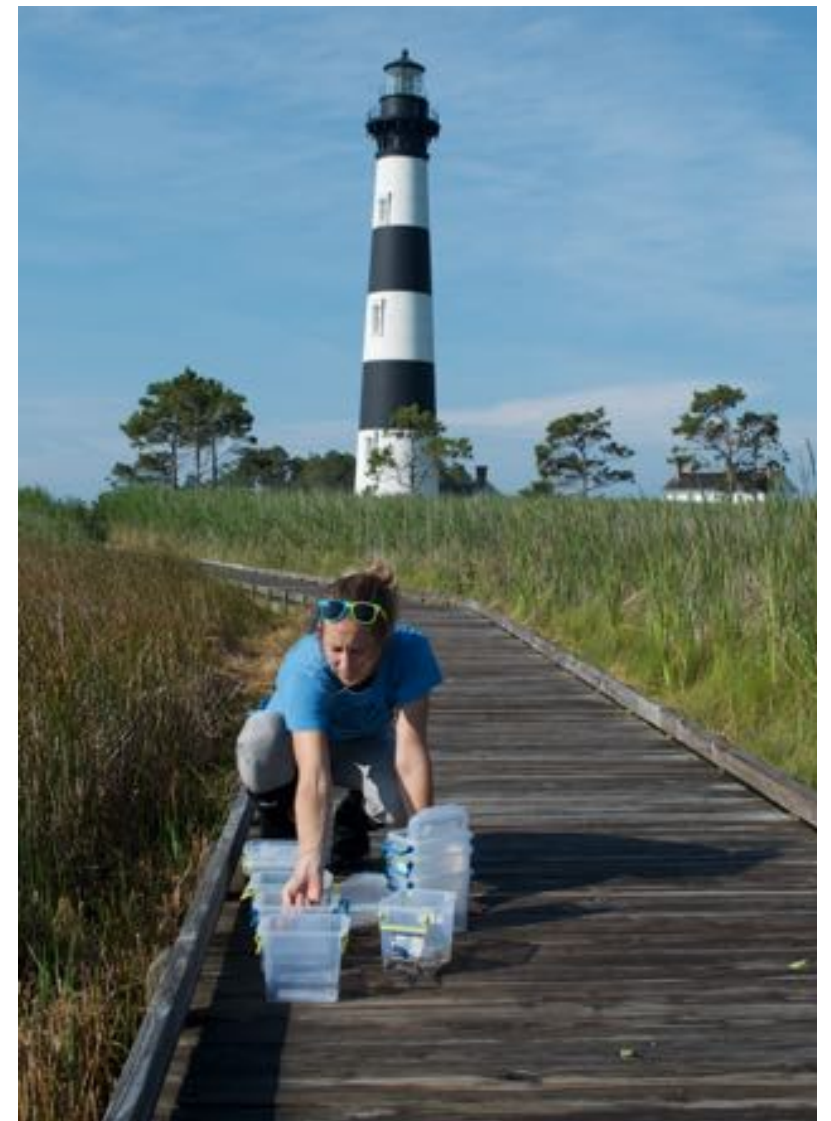
Katie Lotterhos and Molly Albecker
Northeastern University Marine Science Center

RCN Post-doc



Molly Albecker

- Completed PhD in 2018 with Mike McCoy at East Carolina University
- Studied mechanisms of local adaptation using salt-tolerant frog populations
- Hopes to positively impact study of local adaptation in the sea using meta-analyses
 - Project one: Co-gradient and Counter-gradient variation meta-analysis

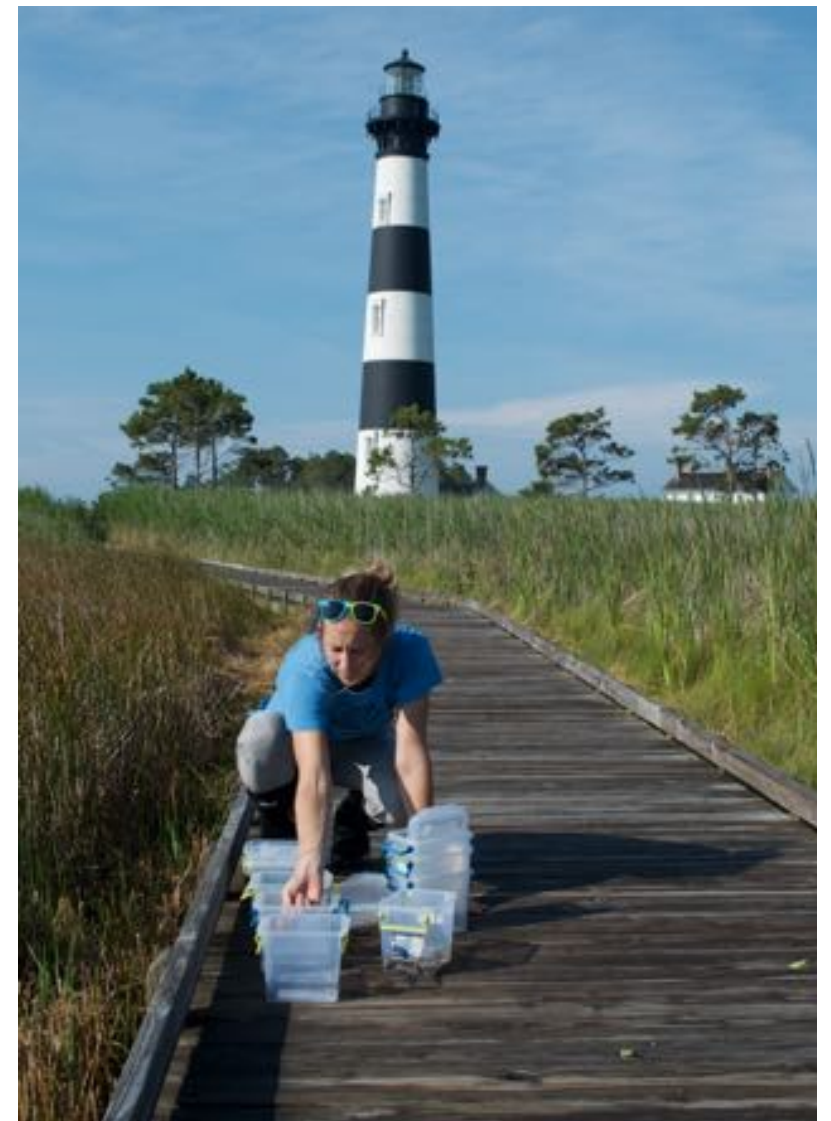


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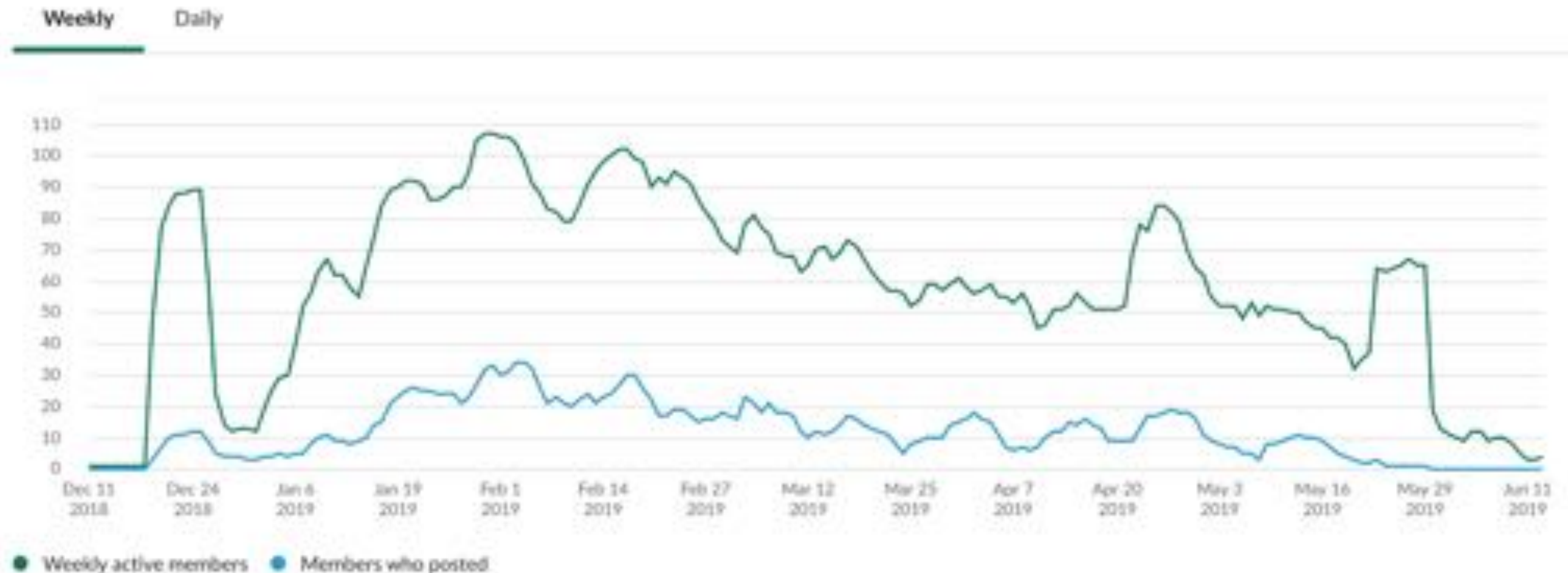


Coordinated readings

- Local adaptation
 - Genetic architecture
 - Causes and consequences of genetic load
 - Balancing selection
 - Phenotypic plasticity
 - Sweepstakes
- Reproduction vs. Selection



Coordinated Readings -Participation

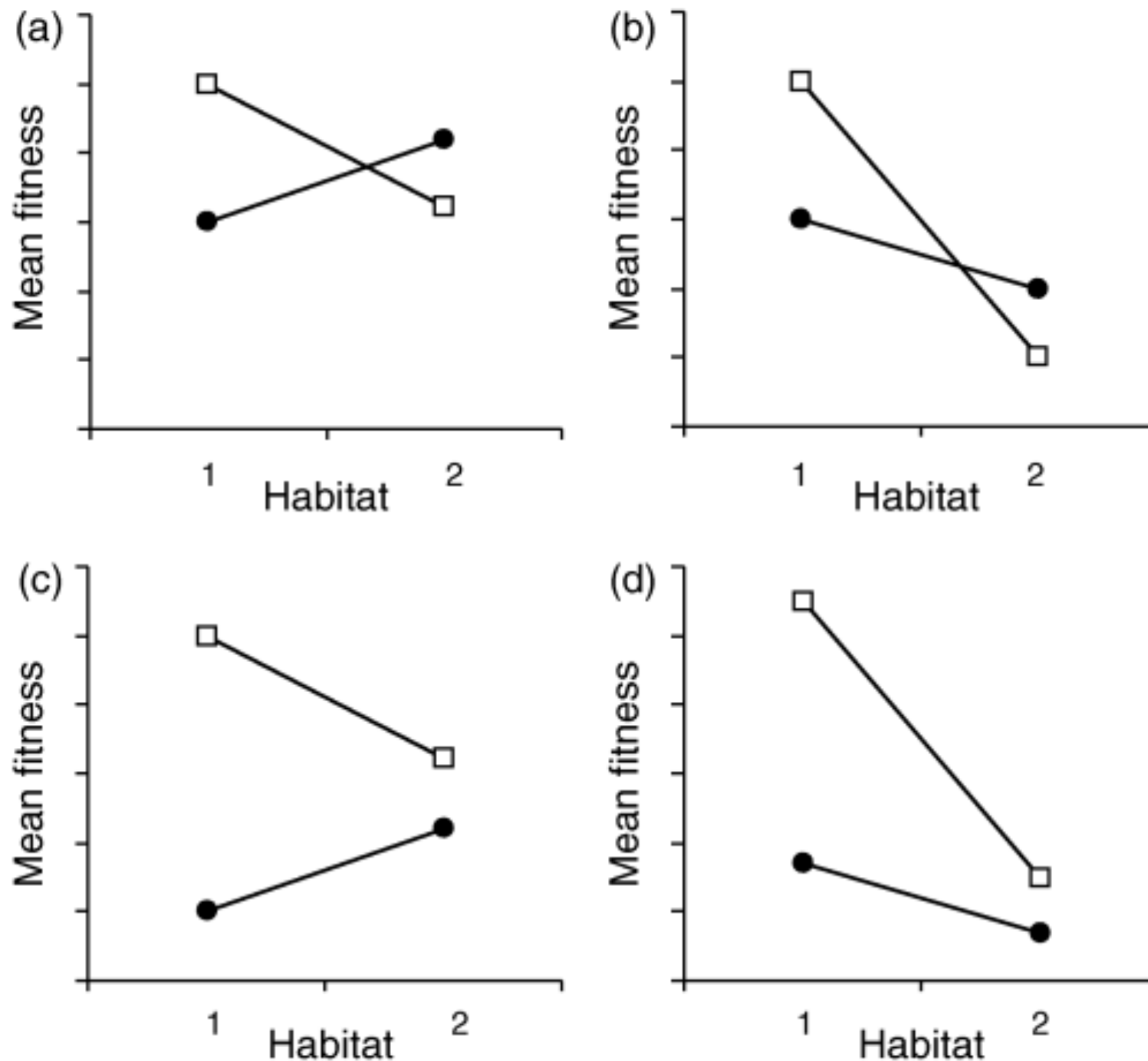


- 15 groups/discussion
- 79 people/discussion

Major Theme

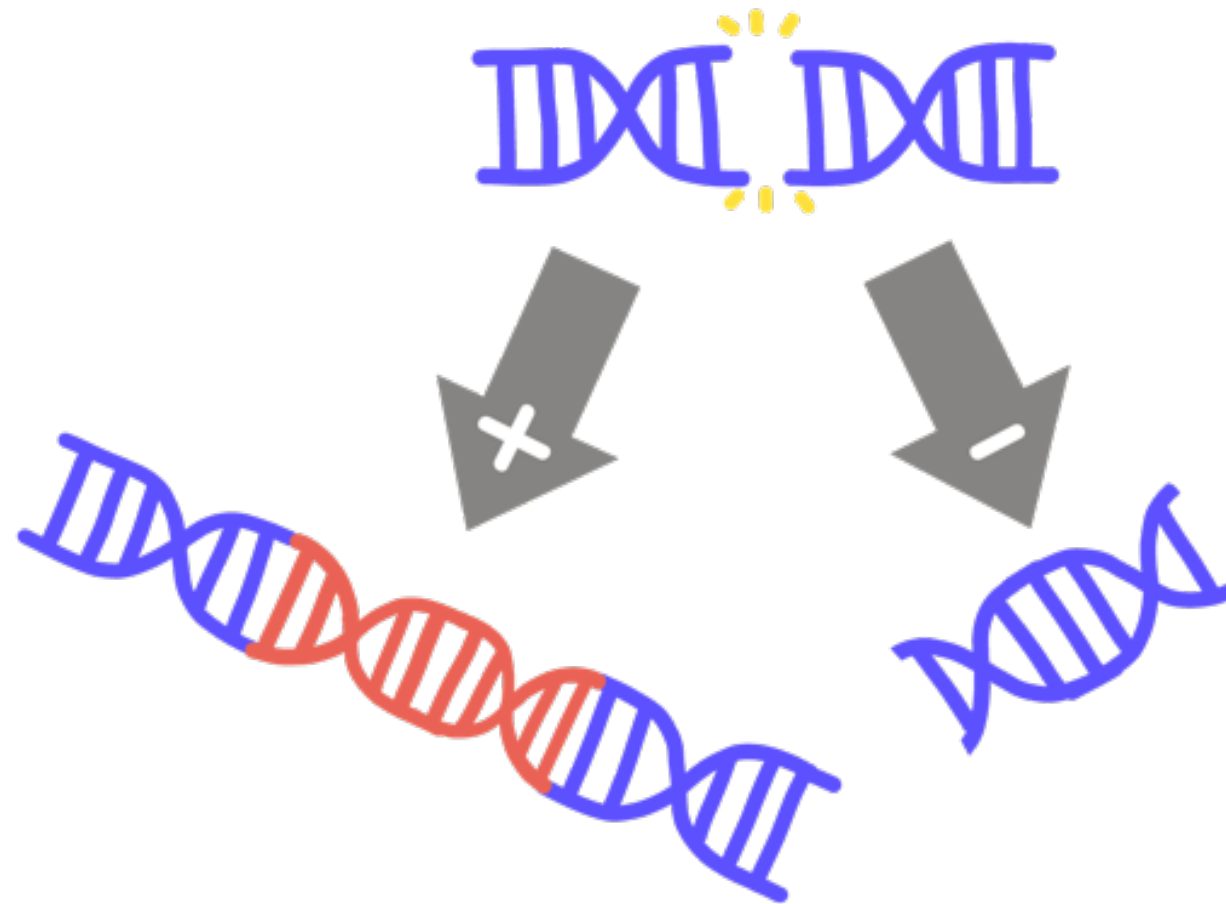
Local adaptation

- What is it?
- Logistical issues and limits



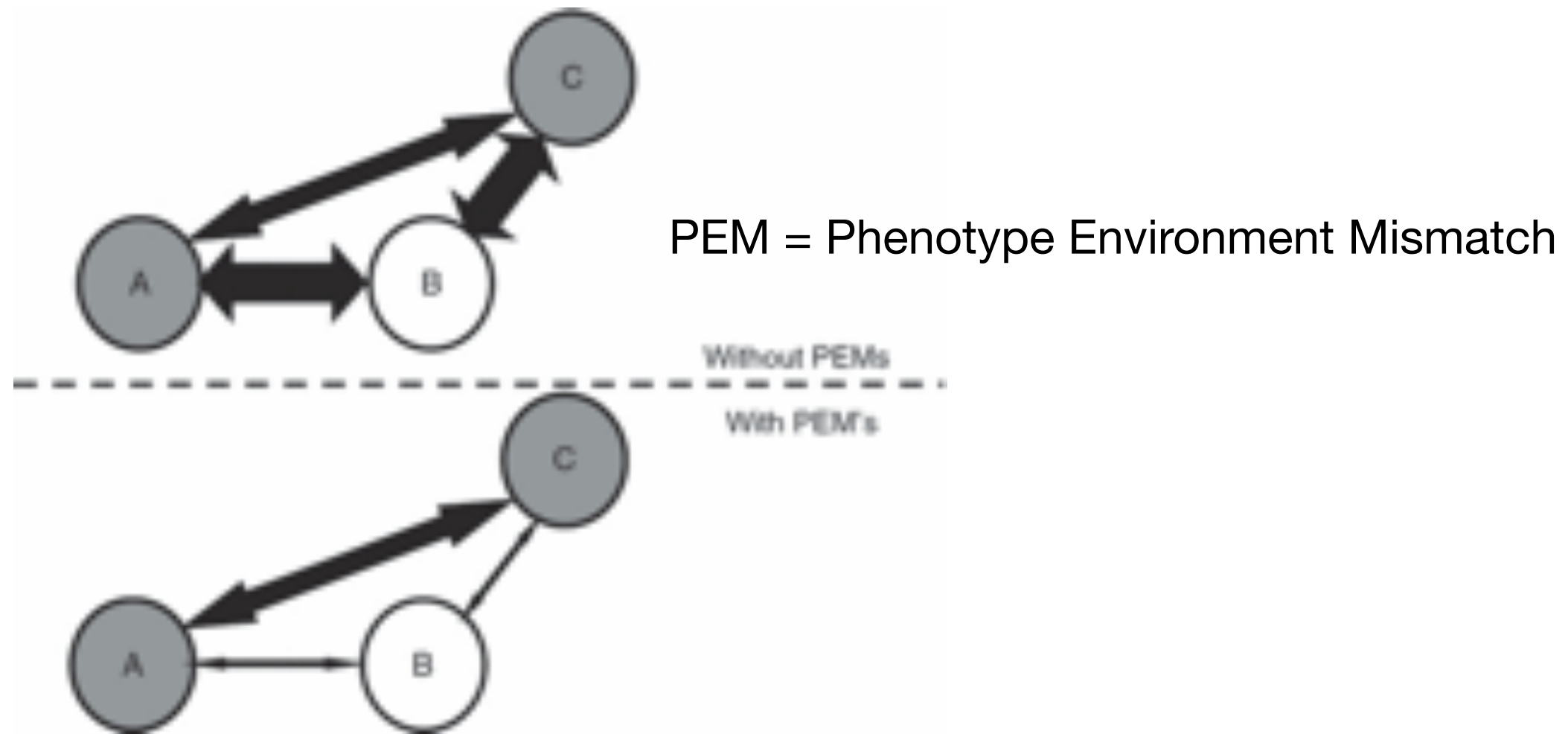
Knowledge Gaps

- Genetic architecture
 - Prevalence and detection in nature?
 - How do past in/dels affect future adaptation?



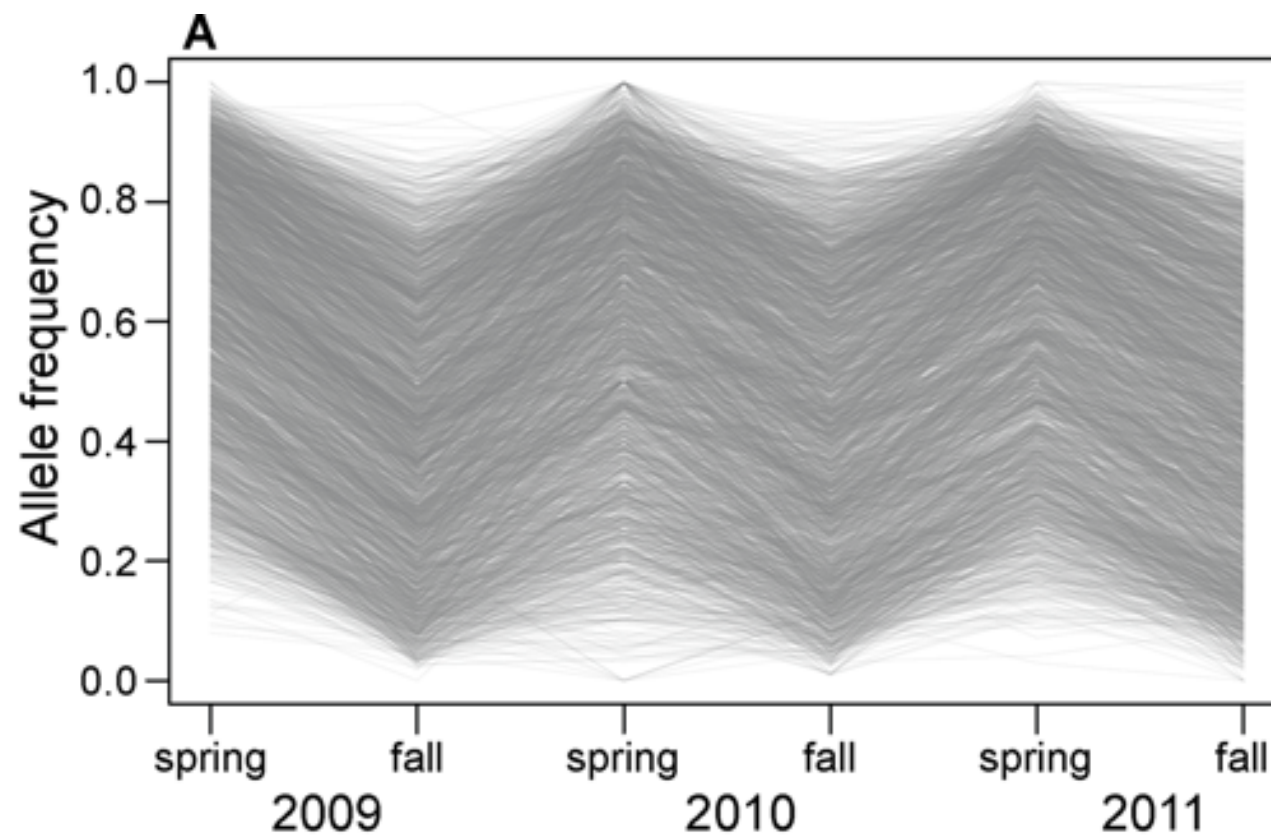
Knowledge Gaps

- Causes and consequences of genetic load
 - Conservation implications



Knowledge Gaps

- Balancing selection
 - Prevalence and detection in nature?
 - Role of life history?



Knowledge Gaps

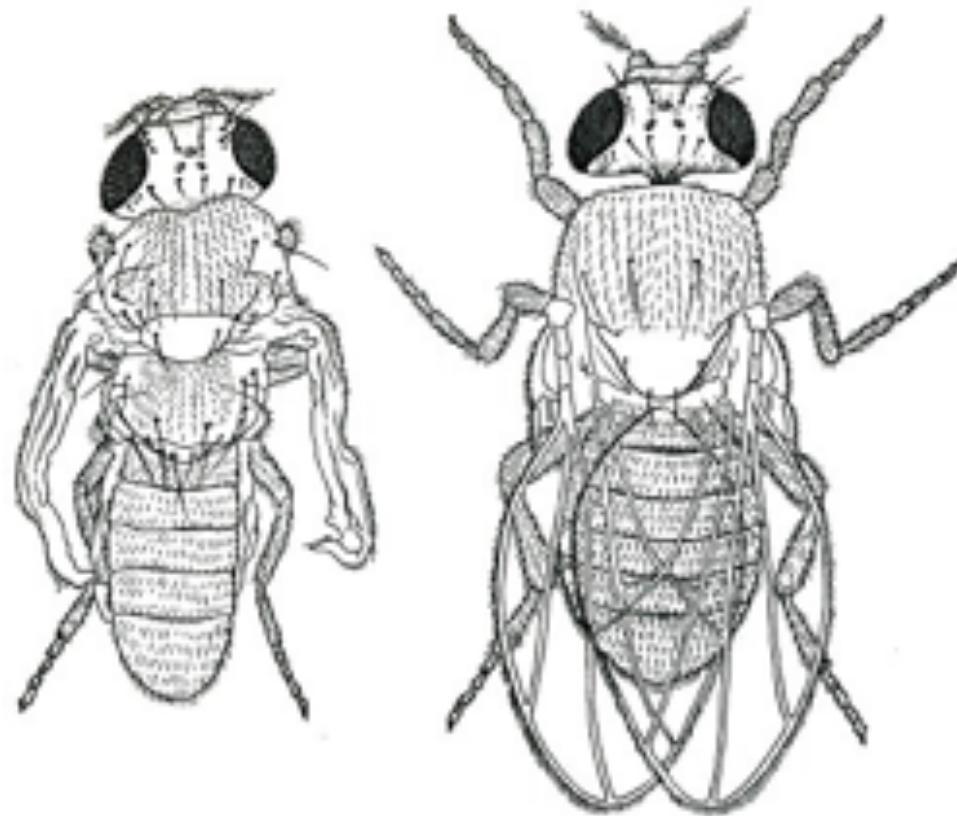
- Sweepstakes Reproduction vs. Selection
 - Random (genetic drift) vs. deterministic processes on pelagic larvae



Photo: NOAA - Emma Hickerson

Knowledge Gaps

- Phenotypic plasticity
 - Role of environmental stochasticity
 - Evolution of plasticity (past and future)



Waddington 1953 - *Evolution*

Schaum and Collins 2014 - *Proceedings B*.

Figure from Waddington 1953 - *Scientific American*

Summary - Knowledge gaps

- Local Adaptation
- Detection Issues
 - Larval dispersal
 - Alleles of small effect
 - Appropriate experimental design

Emerging Paradigm?

- “Large effective populations sizes make selection efficient in marine species”
- Marine genomes

Atlantic cod



Marine Stewardship Council

Eastern oyster



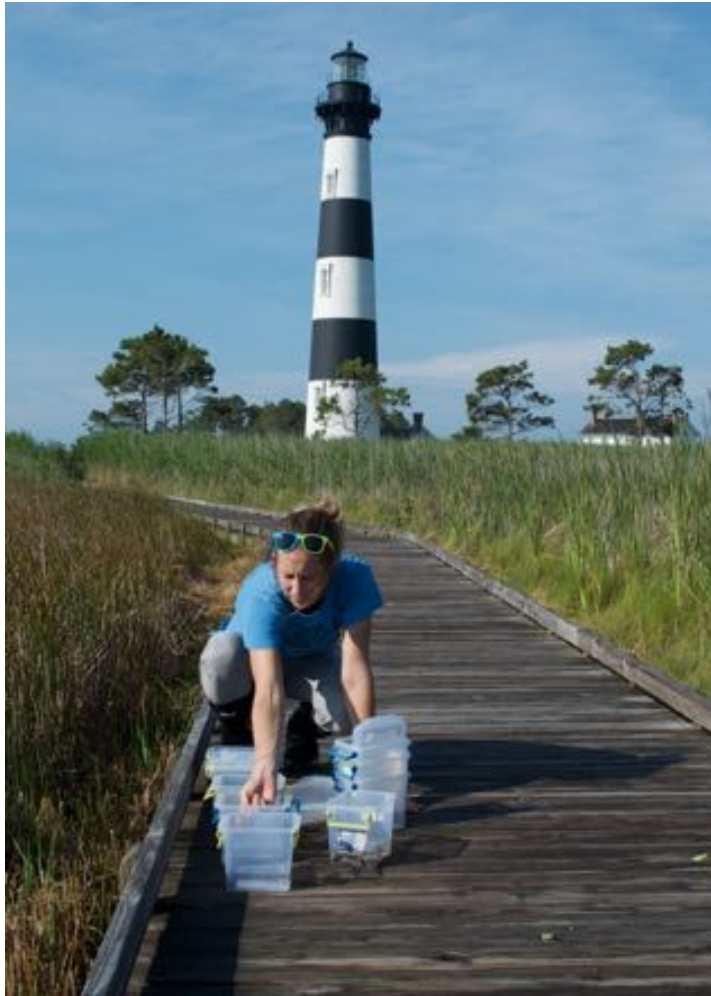
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Want to join a working group



**Contact Molly
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**Contact Holly
Kindsvater
(Virginia Tech):**
[holly.kindsvater@
gmail.com](mailto:holly.kindsvater@gmail.com)

Weekly takeovers on Twitter

~20 Members in 2018-2019

594 tweets and 614 followers



@EvolvingSeas

@evolvingseas

Follow



When I invited a terrestrial evolutionary ecologist to join our marine-focused working group, he responded “so, NSF pays for folks to get together and chat about how marine biology should proceed...Do I really have anything to contribute?” It is not an unreasonable question. 1/n