Parental low pH exposure affects reproduction & larval gene expression in the Olympia oyster

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OCEAN ACIDIFICATION, OLYMPIA OYSTER

Negative direct effects on larvae

– ↓ Larval growth, survival (Hettinger et al. 2013)

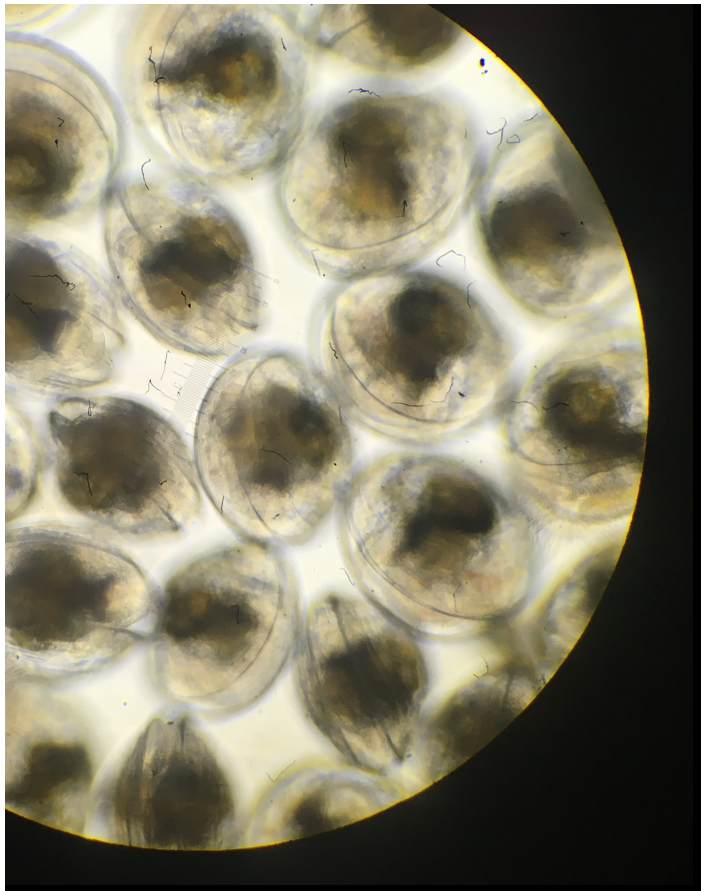
Also evidence of larval tolerance

– No negative effects (Waldbusser et al. 2016)

Why the difference?

Ocean acidification, Olympia oyster

… Parental carryover effect?



"Memory" of stress passed on to offspring?

Parental exposure can <u>positively</u> influence offspring response to OA
(e.g. Parker et al. 2012)

Adults in pH treatment
7 weeks, low pH (7.3) & ambient (7.8)

Adults conditioned
4 weeks, ambient pH

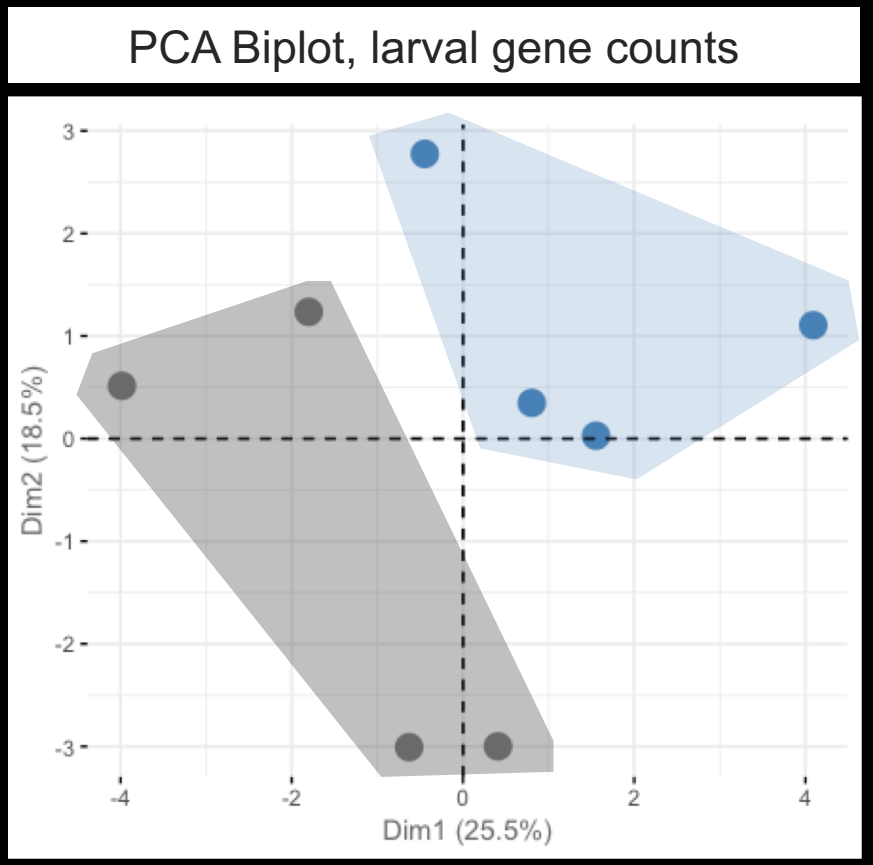
Larvae collected
9 weeks, ambient pH

Parental pH exposure alters larval physiology

RNA sequenced using QuantSeq

Processes affected by parental pH

- Aerobic respiration
- Cytoskeleton
- DNA repair
- Translation
- Protein transport



WHAT DOES THIS MEAN?

Parental pH exposure alters larval physiology …

- Future generations more capable of surviving in low pH world?
- Broodstock handling & history important

Full talk: Saturday @ 4:45pm,
Mollusc Restoration Session in Balcony