SALT
Seep Animal Larval Transport

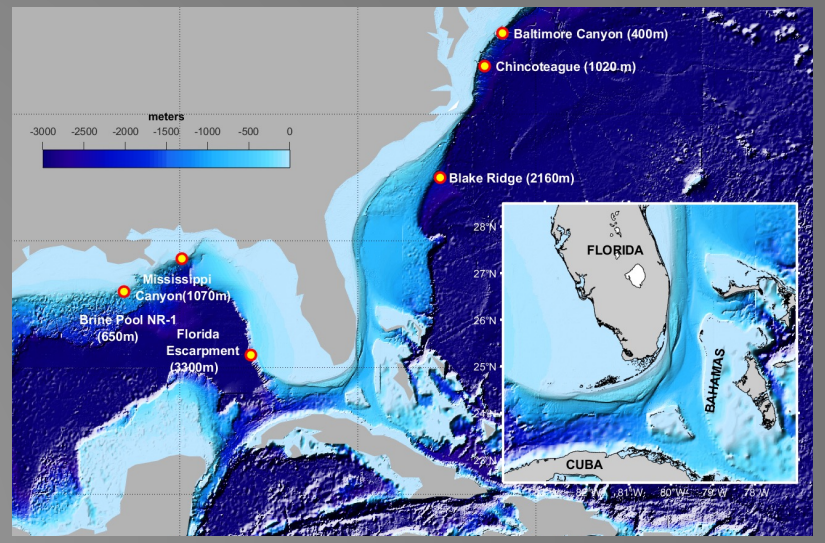
RV Thompson TN-391 (Jason & Sentry)

May 25-June 18, 2021

Shawn Arellano, Ch. Sci. Leg 1

Craig Young, Ch. Sci. Leg 2

Woods Hole to Gulfport



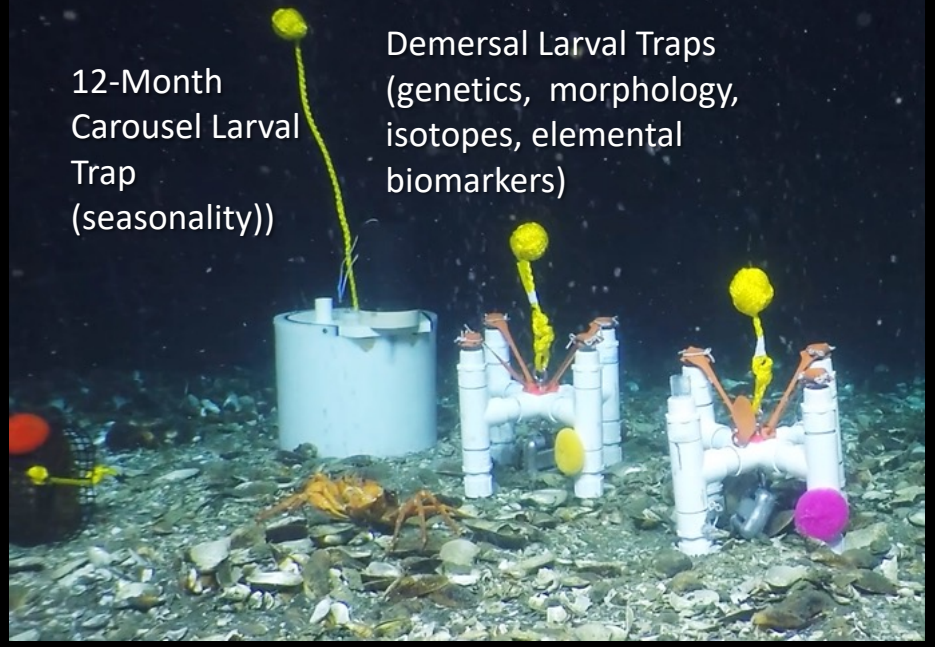
Collaborative Research: Dispersal Depth and the Transport of Deep-Sea Methane-Seep Larvae Around a Biogeographic Barrier

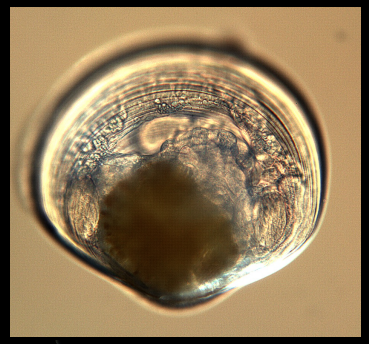
NSF OCE-1851383 (University of Oregon): Craig Young, PI

NSF OCE-1851286 (Western Washington University): Shawn Arellano, P.I.

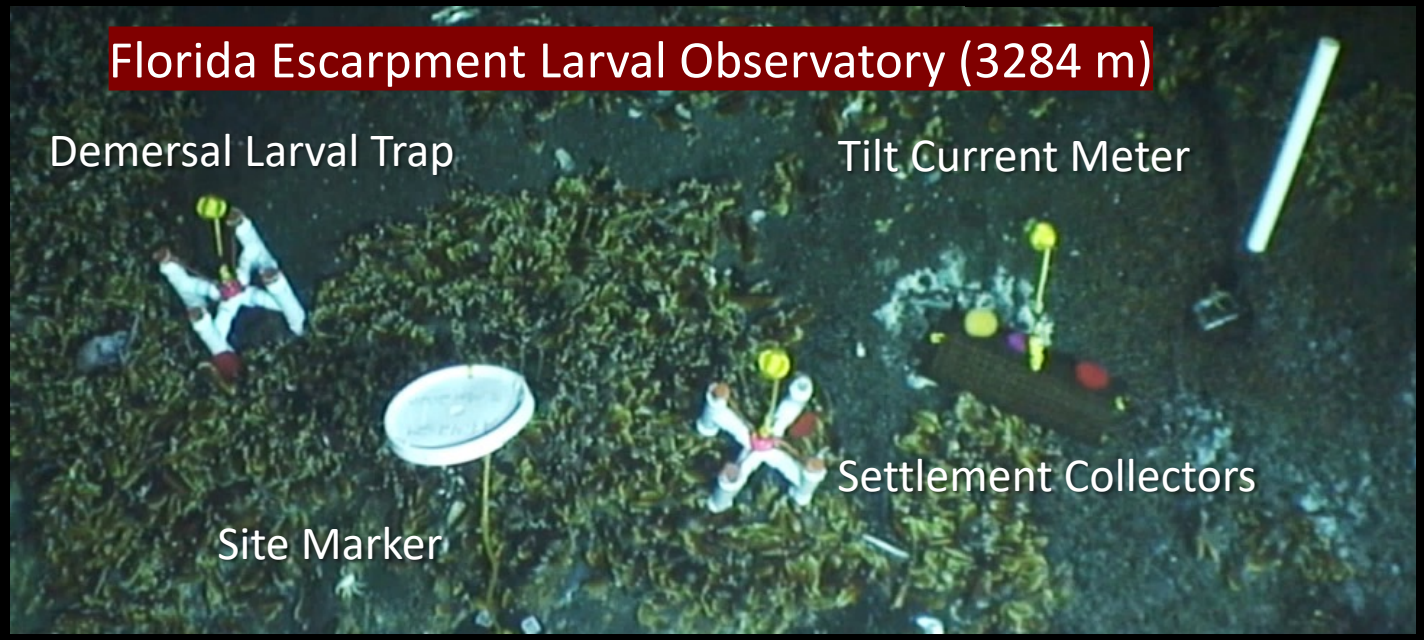
NSF OCE-185421 (North Carolina State University): Dave Eggleston, Ruoying He, P.I.'s

Baltimore Canyon Observatory (400m)



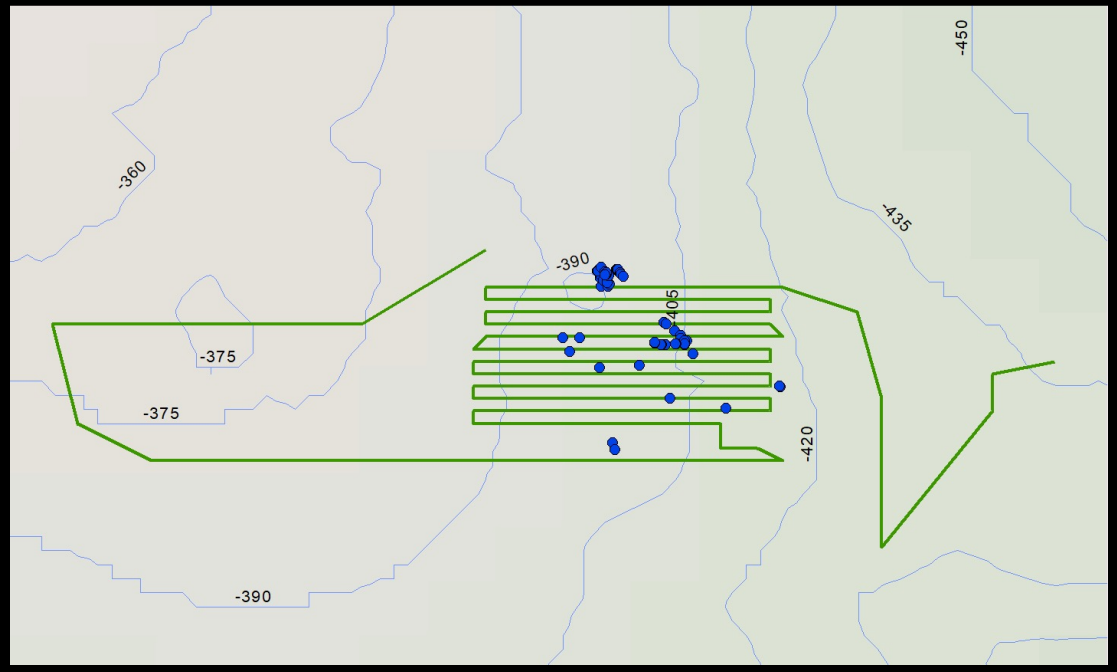


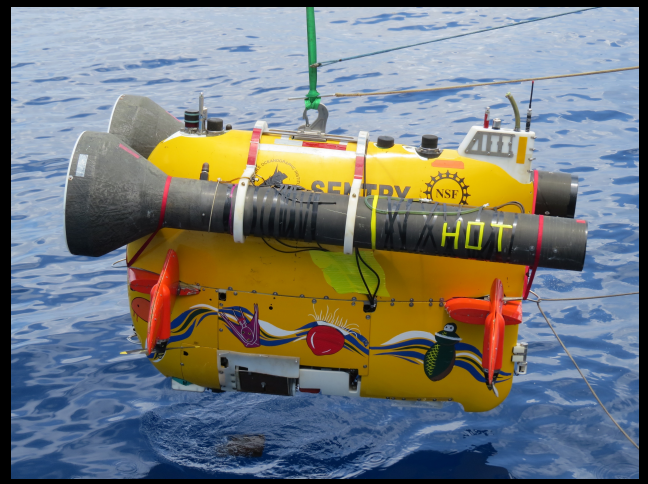
Florida Escarpment Larval Observatory (3284 m)

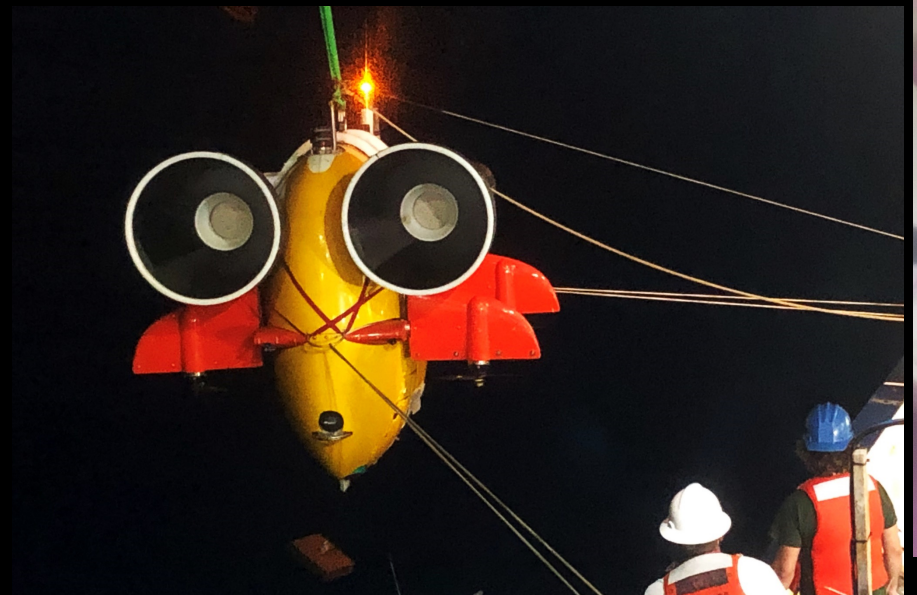


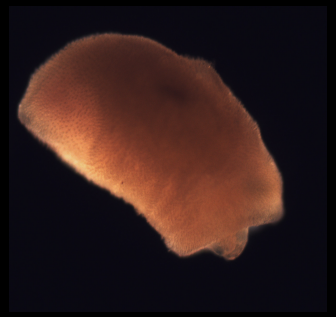
Using large undersea vehicles to find invisible needles in the world's largest haystacks

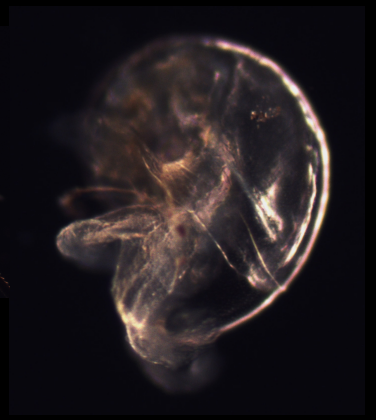
Sentr**y** **P**recision **R**obotic **I**mpeller **D**riven Sampler

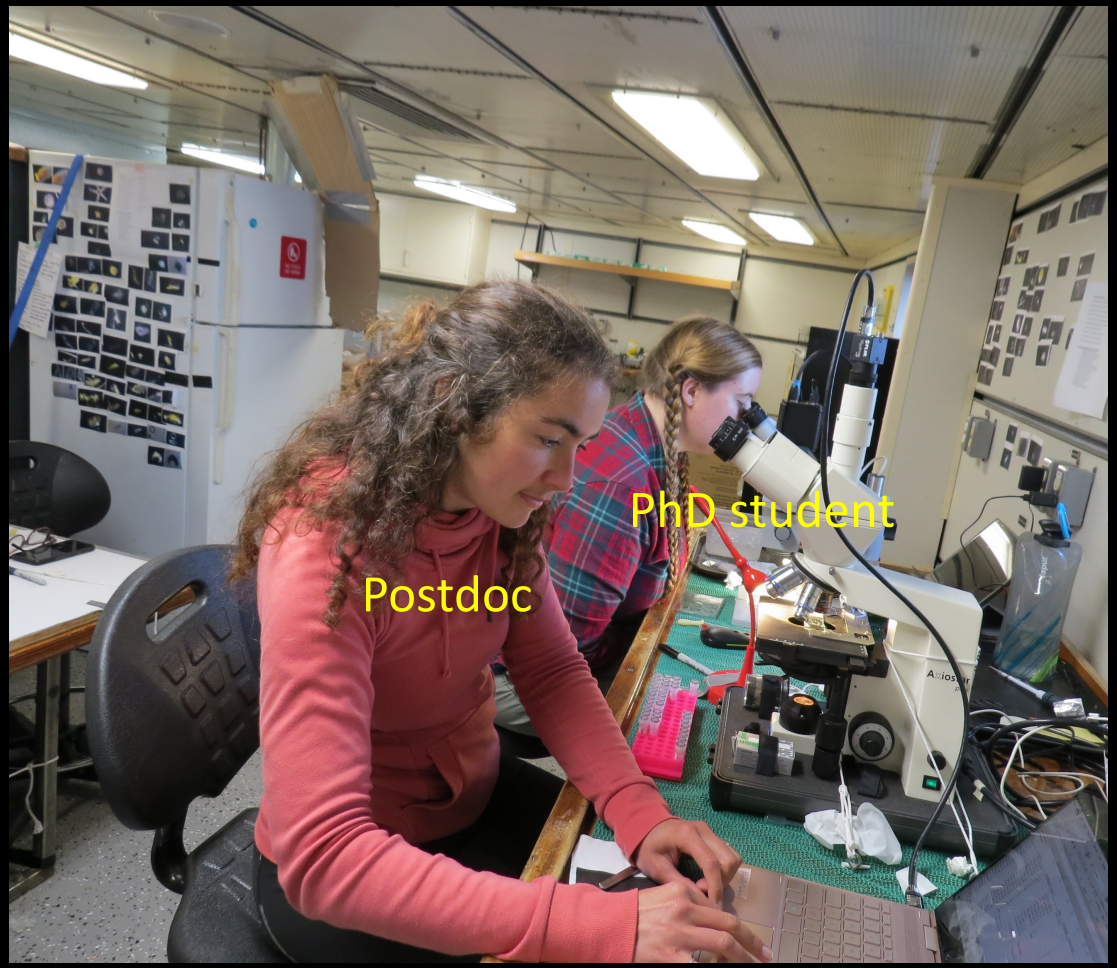
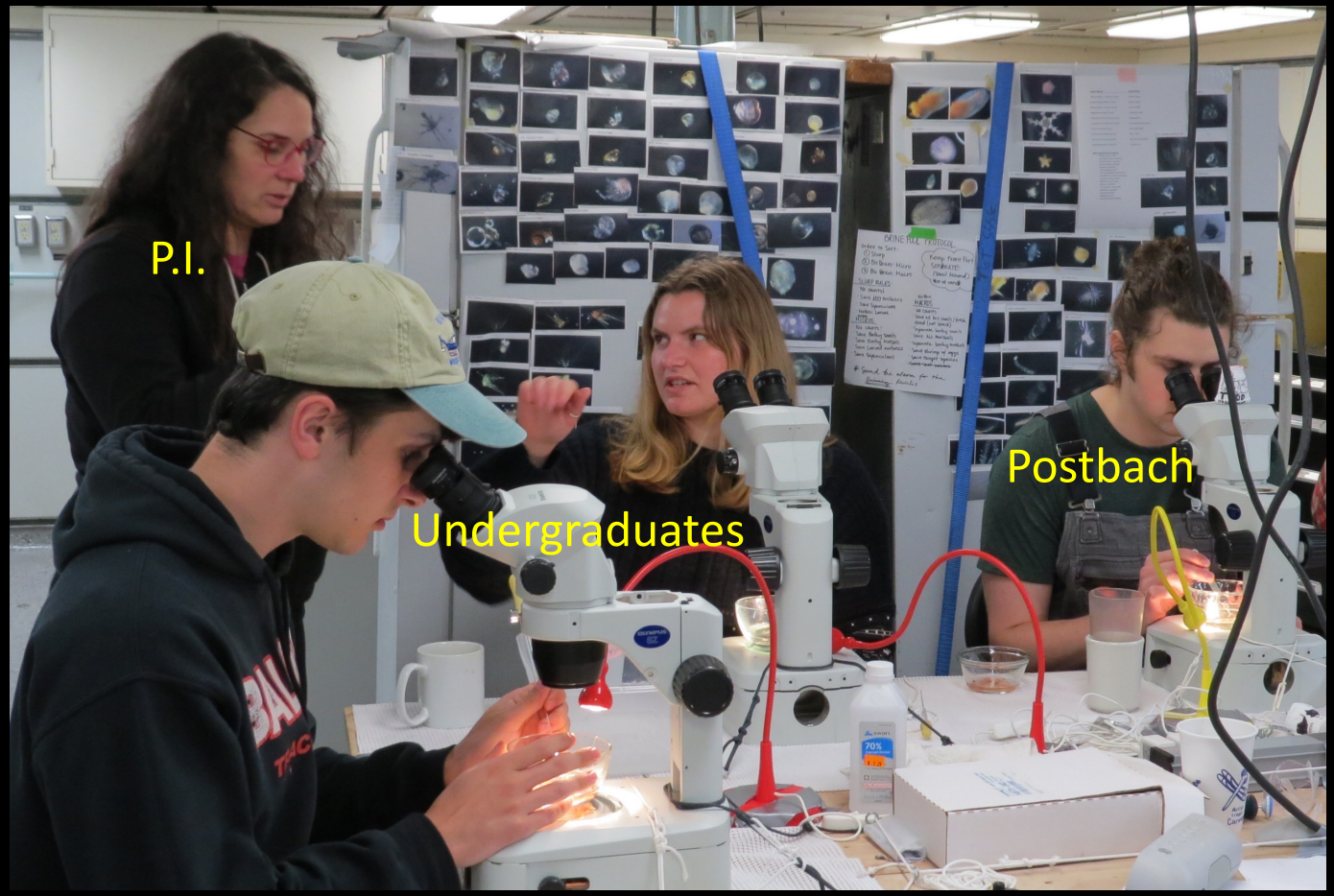






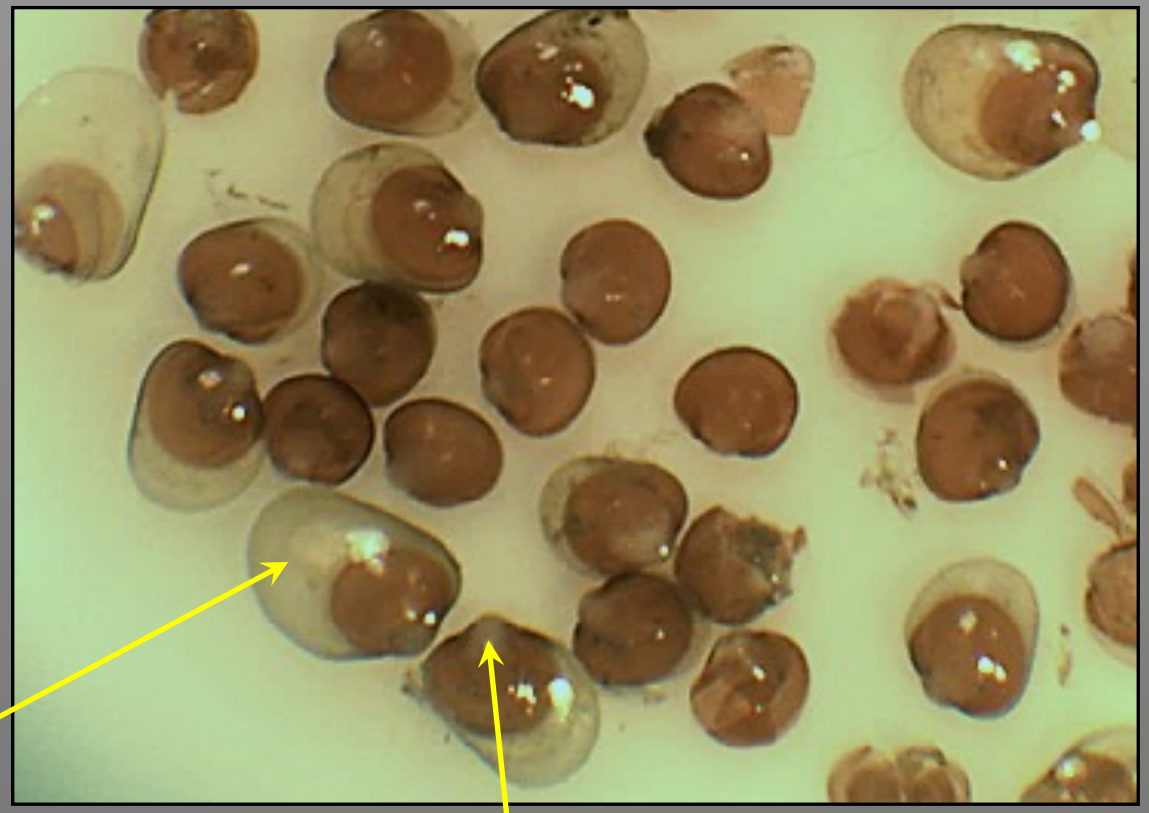






PhD student
Postdoc

P.I.
Undergraduates
Postbach

Oxygen Isotopes as a proxy for developmental temperature

$$\delta^{18}\mathrm{O} = \left(\frac{\left(\frac{^{18}\mathrm{O}}{^{16}\mathrm{O}}\right)_{\text{sample}}}{\left(\frac{^{18}\mathrm{O}}{^{16}\mathrm{O}}\right)_{\text{standard}}} - 1 \right) \times 1000$$

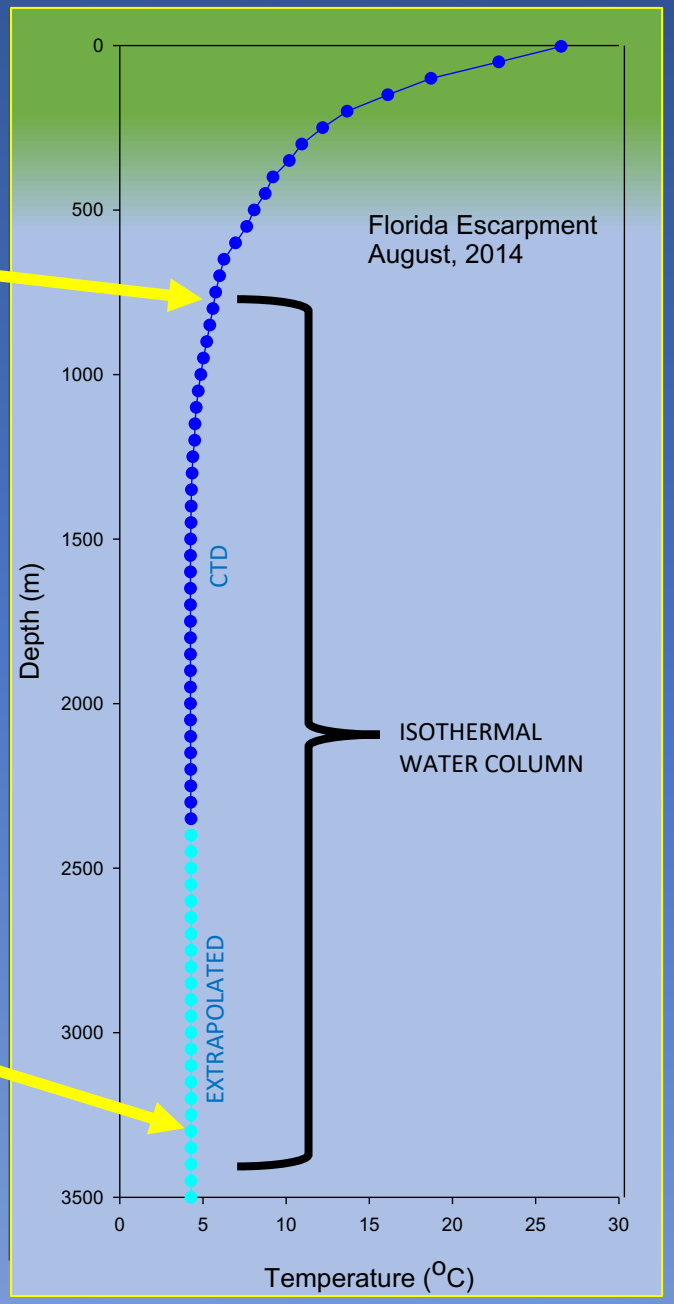


Dissoconch (juvenile shell) deposited on the sea floor at adult temperature

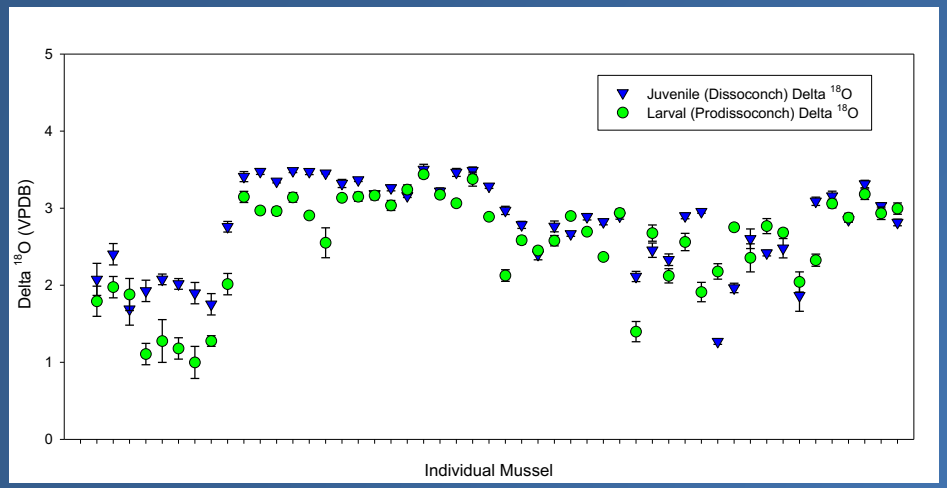
Prodissoconch (larval shell) deposited in the water column at the temperatures the larva encountered)

Gigantidas childressi, Brine Pool NR1, 750m

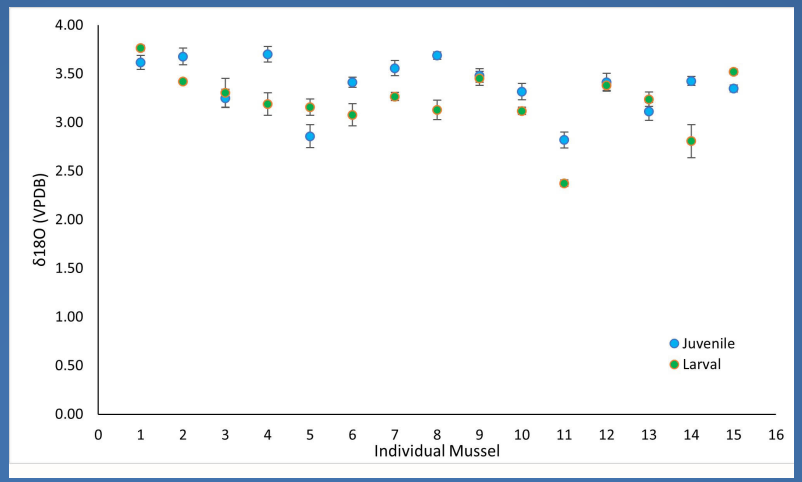
Bathymodiolus heckerae, Florida Escarpment, 3312m



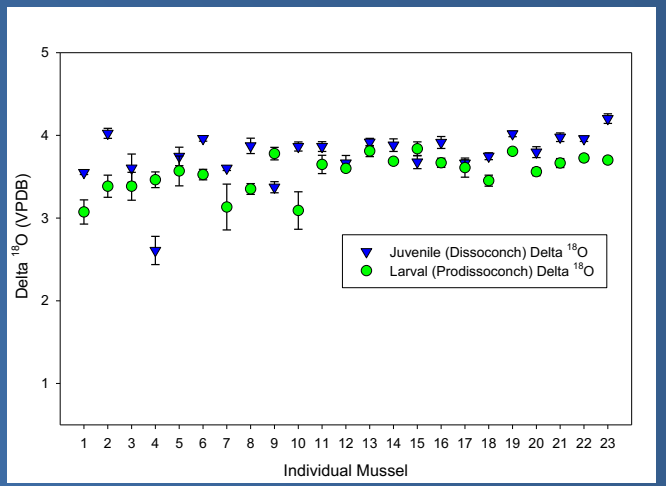
Brine pool (*G. childressi*)

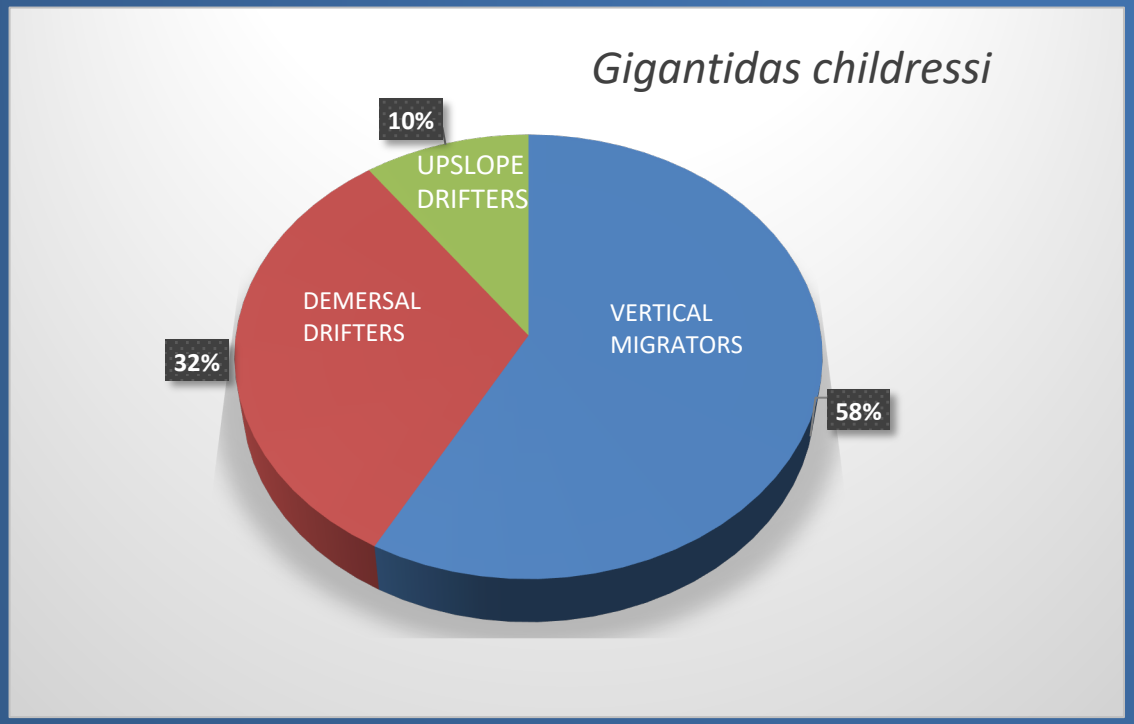


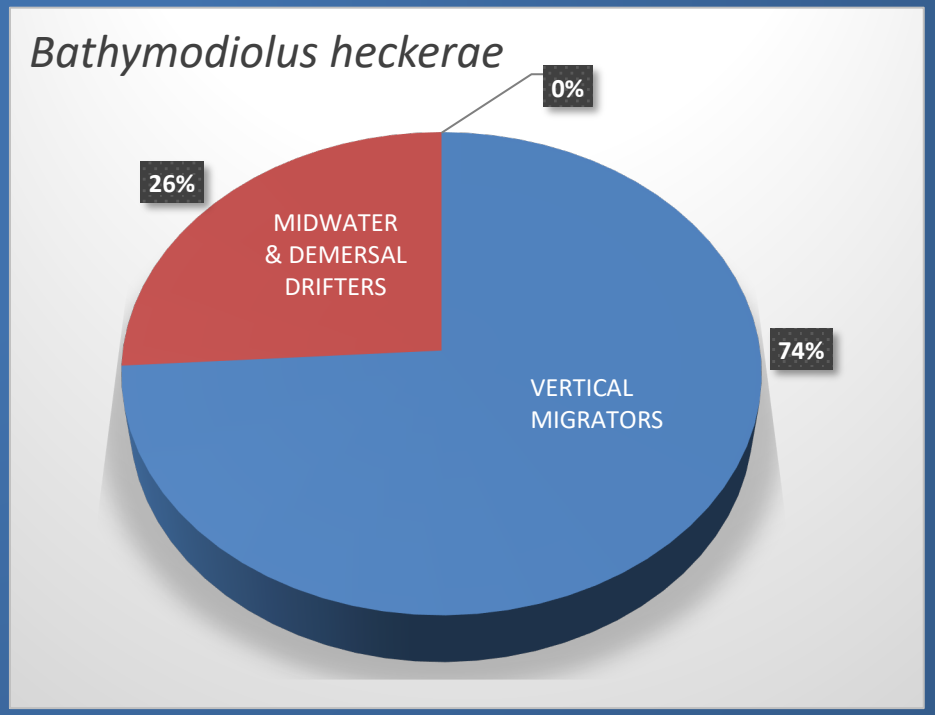
MS Canyon (*G. childressi, B. brooksi*)



FL Escarpment (*B. heckeri*)



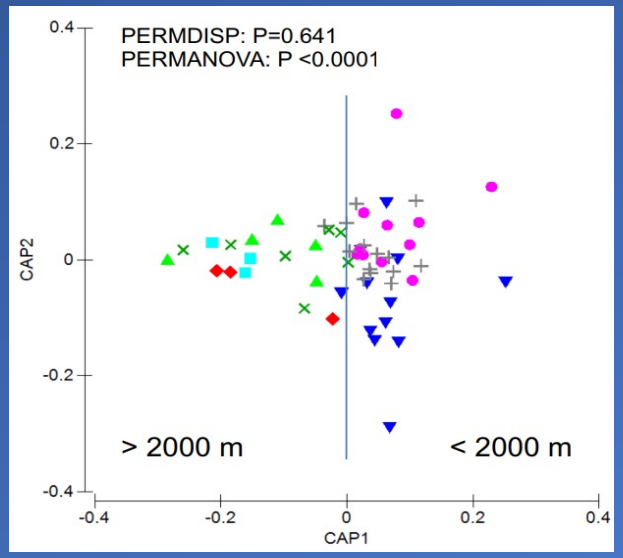




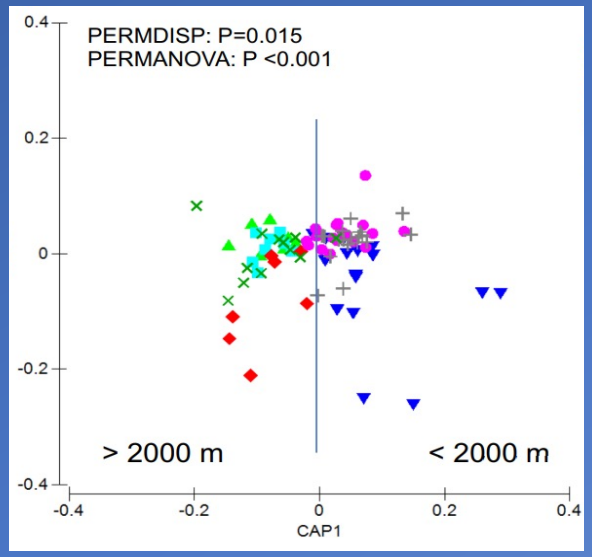
Geochemical analysis of larval and juvenile mussel shells in the Gulf of Mexico

Ian Grace, Ph.D. Student
North Carolina State University

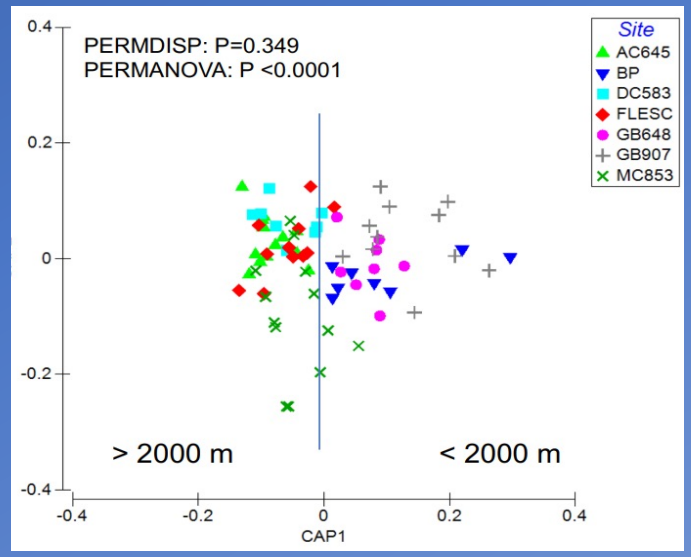
Prodissoconch I

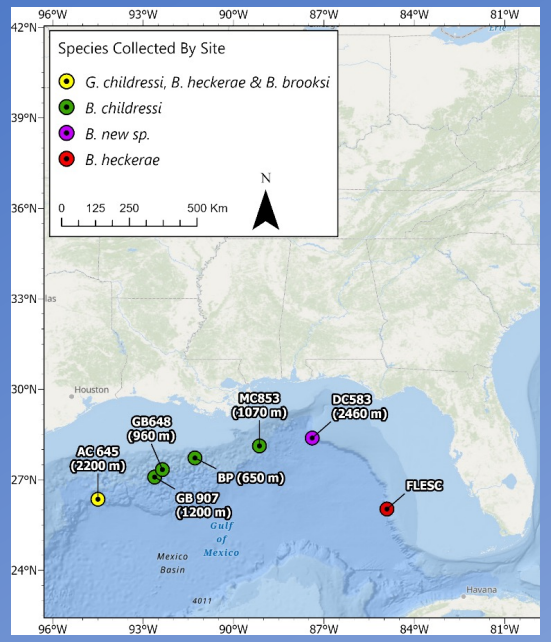


Prodissoconch II



Dissoconch



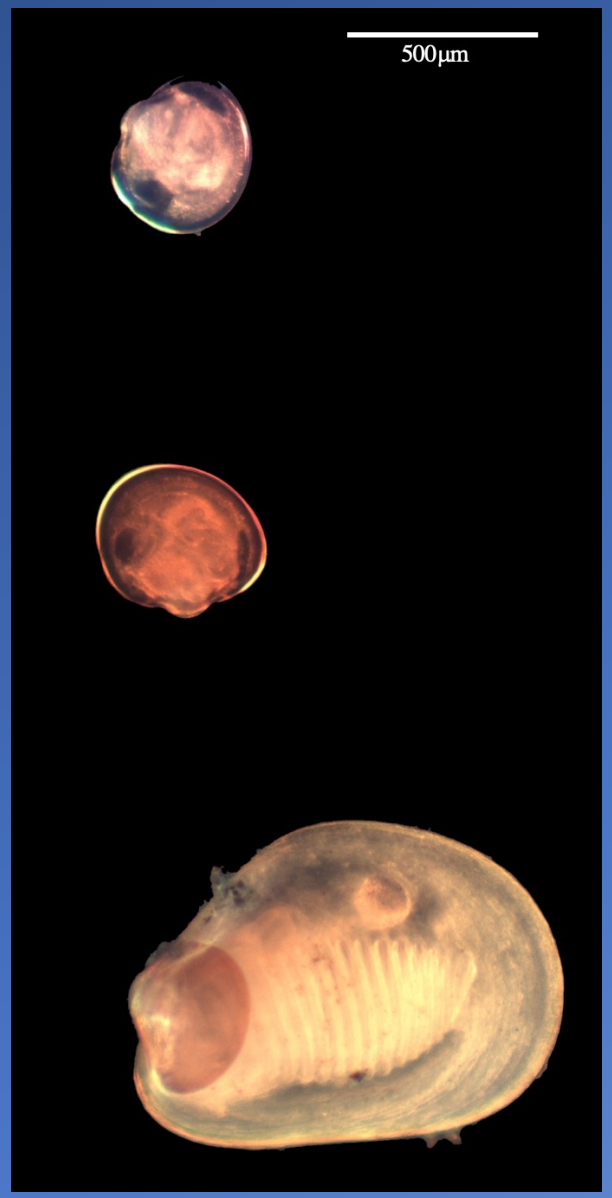


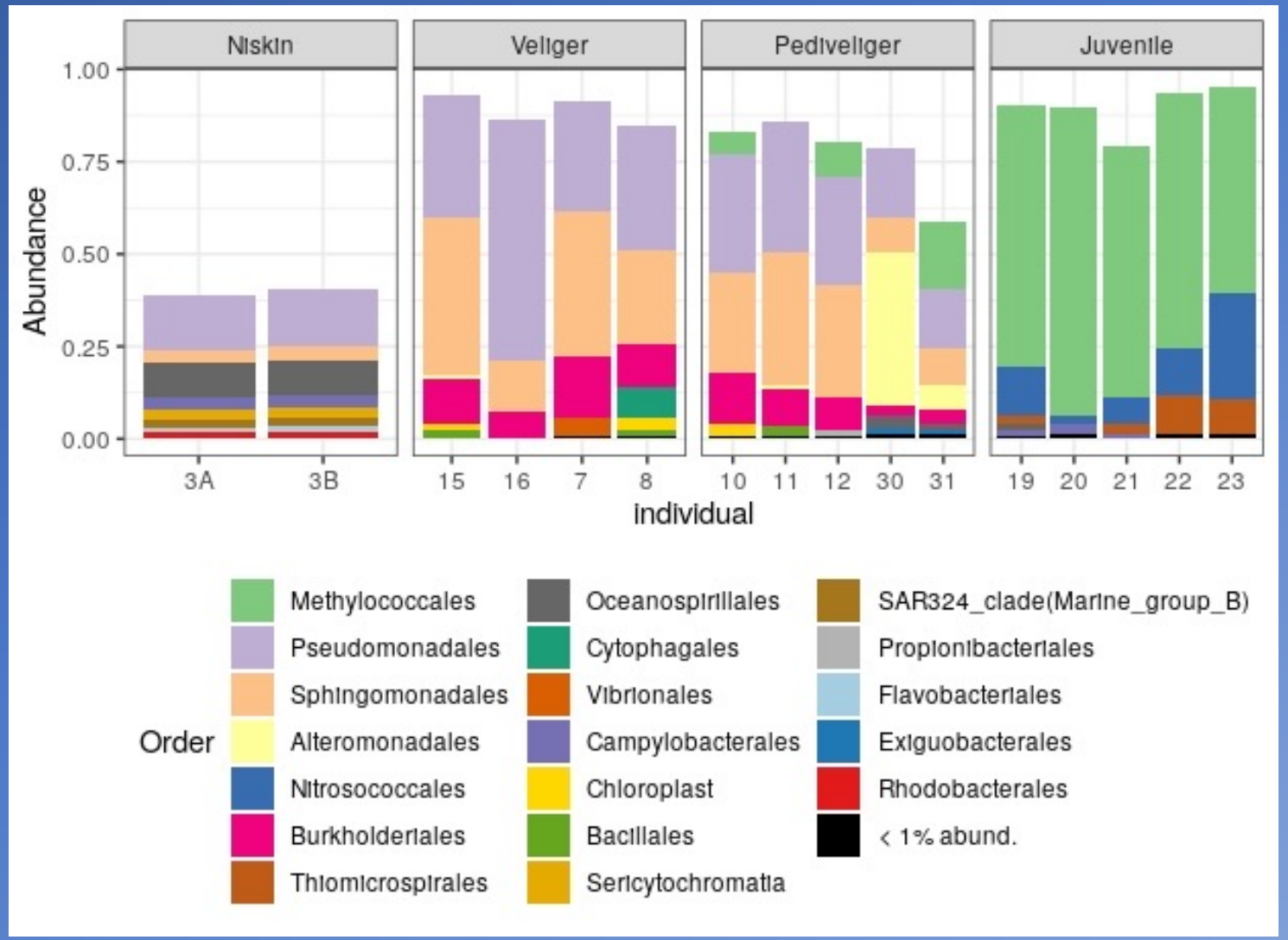
CAP analyses based on elemental ratios (X:Ca) of prodissoconch I, II, and dissoconch shells with axis drawn to maximize discrimination among sites in the GOM

- Significant between-site variability of prodissoconch I ($p < 0.0001$), prodissoconch II ($p < 0.001$) and dissoconch ($p < 0.0001$) shells with depth
- The proportions of populations that (1) vertically migrate, (2) demersally drift, and are (3) natally retained vary with depth

Age-specific microbiomes of mussel larvae and juveniles

Tessa Beaver, M.S. Student
Western Washington University





Geographic and bathymetric patterns of reproductive timing and egg production of bathymodiolin mussels

Caitlin Plowman, Ph.D. Student
University of Oregon

Bathymodiolus heckerae

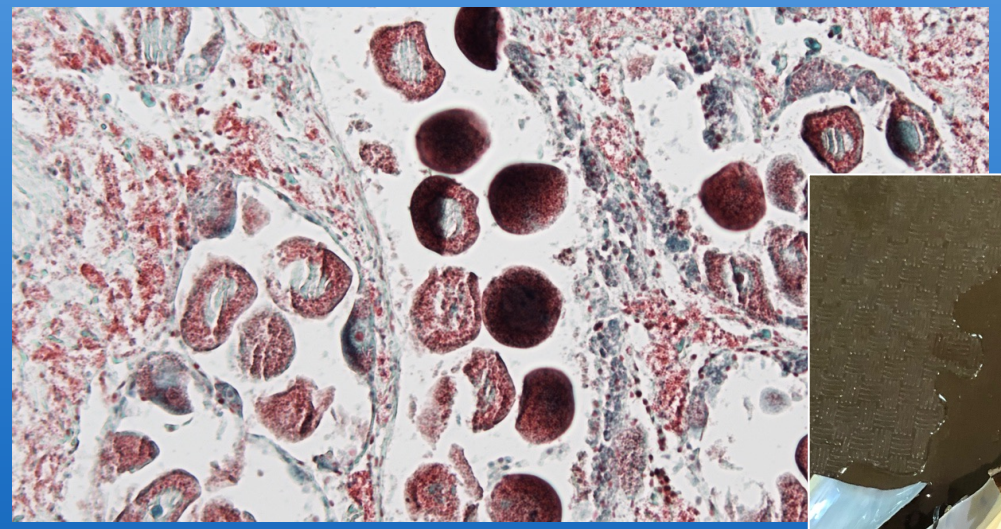
2200-3300 m

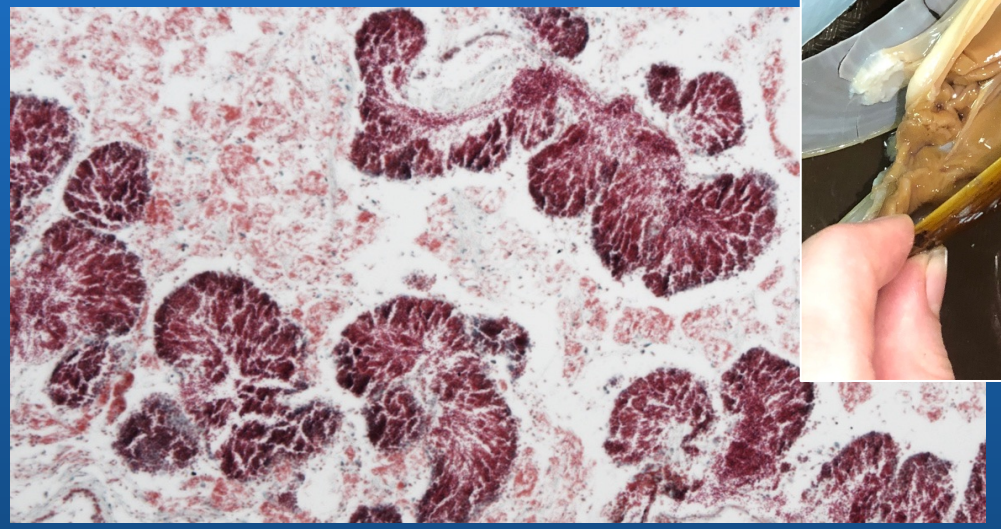
Bathymodiolus brooksi

1080-3300 m

Gigantidas childressi

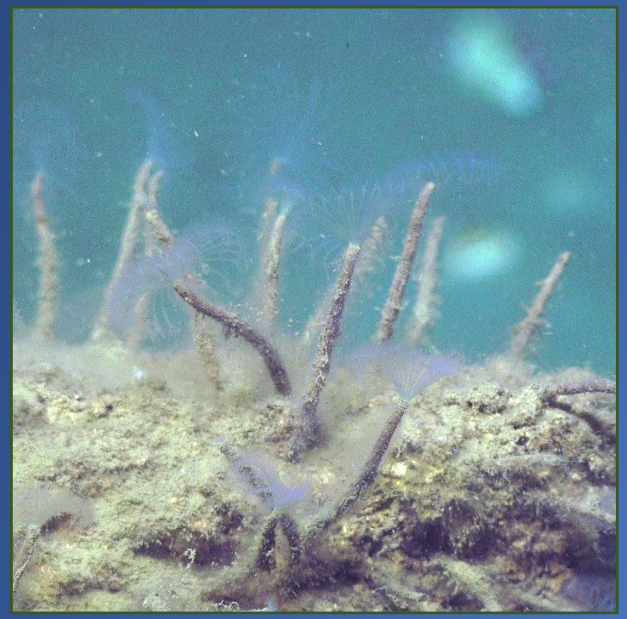
400-2200 m

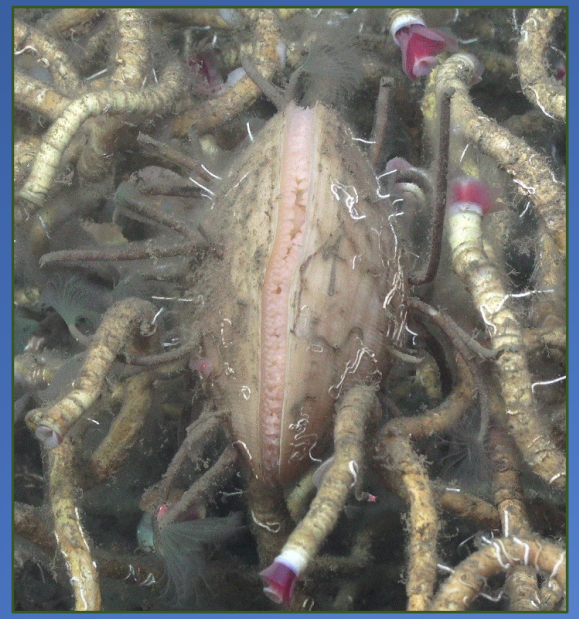


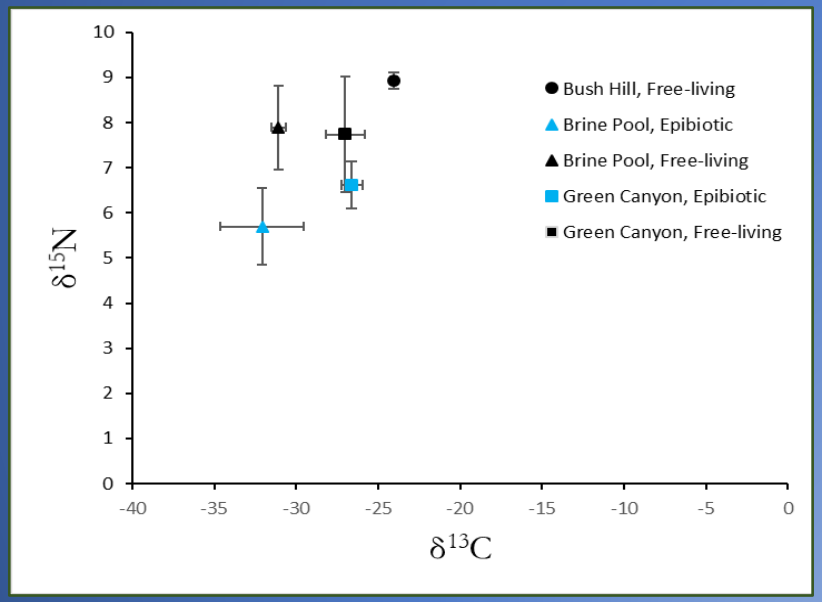


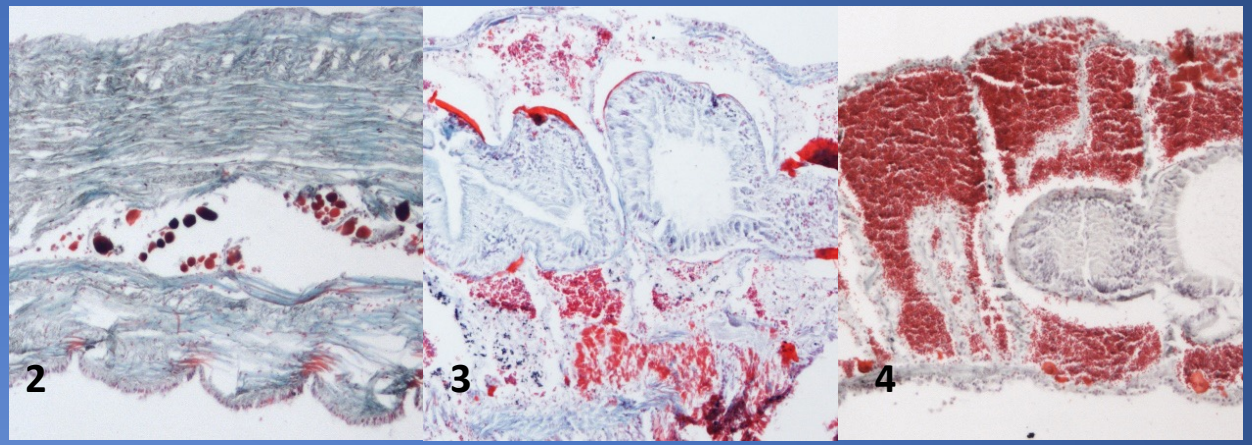
Consequences of Epibiosis in Cold-Seep Sabellids

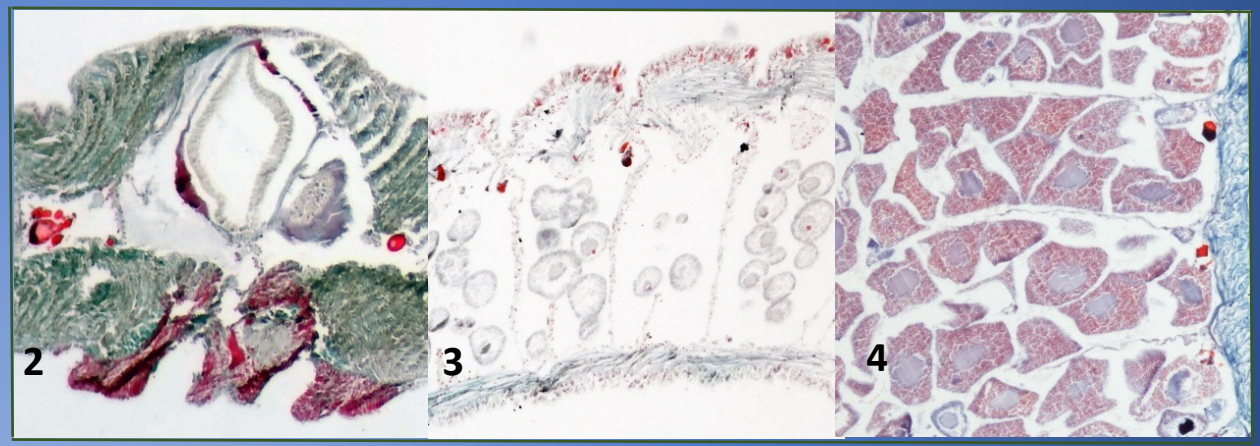
Lauren Rice, Ph.D. Student
University of Oregon











SALT
Seep Animal Larval Transport

Our students:

SALT of the ~~Earth~~ Sea