Impact of winter ocean warming and reduced heterotrophy on the physiological response of the temperate coral *Oculina arbuscula*

Tyler Christian¹, Olivia Williams², Grace Pigford¹, Karl D. Castillo²,³

¹Department of Biology, University of North Carolina at Chapel Hill; ²Environment, Ecology, and Energy Program, University of North Carolina at Chapel Hill; ³Department of Marine Sciences, University of North Carolina at Chapel Hill

**Introduction**

- Coral calcification has declined due to anthropogenic global change and will continue as ocean warming persists.¹
- The southeast coastal United States will continue to experience warmer waters.
- Along with ocean warming, plankton abundance is projected to decrease in the region.¹

**Experimental Design**

- Coral collection at Radio Island, NC
- 15 *O. arbuscula* genotypes (distinct colonies) collected
- One coral nubbin from each genotype in each tank
- 15 nubbins x 4 treatments x 3 tanks = 180 coral nubbins
- Ran experiment for 60 days (Jan 18–March 18, 2019)

**Results and Implications**

- Elevated winter temperature increased calcification rates.
- Low feeding had higher calcification under ambient conditions only.

**Research Question**

How will projected winter ocean warming and predicted declines in zooplankton abundance for heterotrophic feeding impact the temperate branching coral, *Oculina arbuscula*?

**References and Acknowledgements**


I would like to thank Colleen Bove, JP Rippe, Jess McCoppin, Natalie Patetta, and Liz Farquhar for their help with this project.