**Taking symbioses apart & putting them back together: Exploring the ecological consequences of algal-bacterial interactions”**

*summary*: We study how environmental conditions sway partner crosstalk within microalgal symbioses and the cascading ecological consequences. Within this framework, we are interested in how biogeochemistry and cellular communication mediate organismal physiology. We investigate these interactions via a blend of fieldwork, experimentation with lab cultures, physiological and molecular techniques. Our work spans marine and freshwater systems. Some symbioses we are currently exploring include coral-dinoflagellate mutualisms, phytoplankton-bacteria symbiosis, and freshwater sponge holobionts.