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Department of Marine Sciences
Presents a Seminar by

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ENDS: Beginning of a molecular-ecological integration to illuminate drivers of phytoplankton dynamics and regime shifts

Diatoms and dinoflagellates are two major groups of phytoplankton that play pivotal roles in coastal marine biogeochemistry. While diatoms usually dominate coastal phytoplankton communities, dinoflagellates at times outcompete diatoms in seasonal succession or harmful algal bloom events. Furthermore, dinoflagellates are ecologically very successful and show uptick trends in the backdrop of global warming and environmental changes. Yet, our understanding of how a dinoflagellate gains competitive edges and thrive in their diverse habitats is still very limited. While diatom ecology has benefited from genomics and functional genetics, such contemporary molecular tools are not as accessible for dinoflagellates. Nevertheless, recent (slow but steady) advances have brought insights into how dinoflagellates regulate gene expression, acquire resources, and adapt to their lifestyles (e.g., symbiosis with corals). These have led me to posit that dinoflagellates are genetically wired to be advantaged in energy and nutrient acquisition in resource-limited environments, anti-microbial defense, and sexual reproduction for population proliferation, or E-N-D-S. I will present laboratory work and in situ data to support the ENDS model and shed light on metabolic drivers of phytoplankton regime shift and HAB formation.

Host: Frank Bohlen

Time & Date: 11:00 am, Friday, December 11, 2020

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