Woods Hole Oceanographic Institution

Biology Department Seminar

Thursday, May 18, 2023 at 12:00 Noon

Central América Tropical Experience: From Coral Transcriptomes to Coastal Protected Areas and Oceanographic Cruises

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WHOI Guest Student

Marine and oceanographic sciences can be well developed in some countries, while others are taking the first steps or just starting to get interested in. As a biologist from Guatemala, I had always look for opportunities to get involved in marine science, to learn for later applied the knowledge in my country. In this seminar I'll talk first about my research with coral symbionts (Cladocopium, Symbiodiniaceae) from two different coral host of the Gulf of California, then I will explain Guatemalan context in terms of marine science, finally will talk about the projects I've been involved in a coastal protected area from Guatemalan Pacific Coast and oceanographic cruises in the Eastern Tropical North Pacific I've participated working with zooplankton.

Scleractinian corals are important components of coral reefs that sustain a symbiotic relationship with a variety of microorganisms forming metaorganisms known as Holobionts. One of the most important symbionts are the dinoflagellates of the family Symbiodinaceae, as they provide energy, protection, and resistance. It is important to understand the symbiotic relationship between coral-dinoflagellates and how they will adapt to extreme environmental conditions under global climate change. We study the gene expression of *Cladocopium sp* (Symbiodiniaceae) from two escleractinean corals of the Gulf of California, *Porites panamensis* and *P. sverdrupi* distributed in different depths. We found 107 DEGs, 74 and 33 upregulated genes were found in symbionts from shallow and deep waters, respectively. A total of 45 genes (49% DEGs) were annotated of which 23 were stress response genes involved in temperature and unfolding protein stress, light and UV stress. Also, genes related to light absorption efficiency were expressed in the shallow water symbionts. These results suggest that the symbionts from shallow waters are adapted to more stress due to light exposure or higher temperatures than symbionts from the deep waters.

HYBRID! **In person**: Redfield Auditorium **Zoom:** https://whoi-edu.zoom.us/j/94578029014 Meeting ID: 945 7802 9014 **By phone**: Find your local number: https://whoi-edu.zoom.us/u/aim22A2R