
Woods Hole Oceanographic Institution
Biology Department Seminar

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Redfield Auditorium – 12:00 Noon



**Avenues of coral acclimatization in
response to rapid environmental change**

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The swiftly changing climate presents a challenge to organismal fitness by creating a mismatch between the current environment and phenotypes adapted to historic conditions. Rapid compensatory response to environmental change generated by epigenetic mechanisms and the emergent properties of symbiosis can provide a temporal buffer for genetic adaptation. My research focuses on these acclimatory mechanisms that may be especially crucial for sessile benthic marine systems, such as reef-building corals and bivalve mollusks, where climate change factors including ocean acidification and increasing temperature elicit strong negative physiological responses including bleaching, disease, and mortality. By integrating across biological scales from molecular to ecological in a series of preconditioning experiments to future temperature and ocean acidification, we documented evidence of intra and trans-generational acclimatization and parental effects in corals. Furthermore, our findings support a role for *Symbiodinium* shuffling in performance and DNA methylation in phenotypic plasticity. Induction of potentially heritable phenotypic plasticity via preconditioning or parental effects may provide mechanisms with significant implications for sessile marine organism persistence under rapid climate change.