



Society for Integrative and Comparative Biology

2009 Annual Meeting

Meeting Abstract

6.2 Sunday, Jan. 4 Population genetic structure of symbiotic dinoflagellates associated with Caribbean reef-building corals, *Montastraea annularis* and *M. faveolata*.

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Symbiodinium is a highly diverse genus of unicellular dinoflagellate symbionts that associate with a variety of marine protists and invertebrates, including reef-building corals. Although the diversity and phylogenetics of the *Symbiodinium* complex is now well-established, there has been surprisingly few data on fine-scale population structure and biogeography in these symbionts. Here, we present data regarding the population structure of *Symbiodinium* hosted by the Caribbean reef-building corals *Montastraea annularis* and *M. faveolata*. Tagged coral colonies were sampled from reefs in the Florida Keys and Bahamas from 2002 - 2006 and *Symbiodinium* diversity was assessed using denaturing gradient gel electrophoresis of the internal transcribed spacer 2 (ITS2) rDNA and three microsatellite loci specific for *Symbiodinium* belonging to Clade B. The majority of individuals at a site harbor were found to harbor an identical *Symbiodinium* ITS2 type and clone, suggesting low symbiont population diversity per host species per site. Additionally, *Symbiodinium* populations within a colony remained homogeneous through time, including a prolonged 2005 high-temperature bleaching event. Notably, symbiont populations were unique to each site, suggesting low genetic connectivity between them due to *Symbiodinium* having a limited dispersal capability in the environment. Interestingly, neighboring colonies of *M. annularis* and *M. faveolata* harbored differing *Symbiodinium* populations in the Florida Keys while, adjacent *M. annularis* and *M. faveolata* colonies in the Bahamas harbored indistinguishable symbiont populations. We hypothesize that this is due to differences in the genetics of the host corals between these two regions.