

Feb 13th, 10:15 AM - 11:15 AM

## Oral Concurrent Session II: Biological Sciences II: Aquatic Sciences

Dan Barshis  
*Old Dominion University*

Follow this and additional works at: <http://digitalcommons.odu.edu/undergradsymposium>

---

Barshis, Dan, "Oral Concurrent Session II: Biological Sciences II: Aquatic Sciences" (2016). *Undergraduate Research Symposium*. 9.  
<http://digitalcommons.odu.edu/undergradsymposium/2016/MasterSchedule/9>

This Event is brought to you for free and open access by the Student Works at ODU Digital Commons. It has been accepted for inclusion in Undergraduate Research Symposium by an authorized administrator of ODU Digital Commons. For more information, please contact [digitalcommons@odu.edu](mailto:digitalcommons@odu.edu).

**10:15-11:15 AM (ROOM 1310)**

***Biological Sciences II: Aquatic Sciences***

**Chair: Dr. Dan Barshis, Department of Biological Sciences**

**Calcification Rates Indicate Thermal Stress Tolerance in Belize “BackReef” Corals**

David D. Jones (Mentor: Dr. Dan Barshis)

Reef-building corals host symbiotic algae known as zooxanthellae living within their tissues. Exposure to prolonged elevated temperature can cause corals to expel their symbionts and lead to coral bleaching. In this study, corals from Florida and Belize inshore reefs (high temperature variability) and offshore reefs (low temperature variability) were subjected to a 6-week-long heat stress experiment to determine if inshore corals displayed higher stress tolerance than offshore samples. Measurements of calcification rates suggested that Belize’s inshore or “BackReef” corals demonstrated the greatest growth and stress tolerance. Ongoing symbiont density measurements will provide further clues to stress tolerance.

**Establishing Phylogeographic Relationships of *Symbiodinium* in Sites in Florida and Belize**

Benjamin Maxie (Mentor: Dr. Dan Barshis)

Samples of *Porites astreoides* were taken from inshore and offshore reefs in the Florida Keys, as well as fore-reef and back-reef locations in Belize. DNA was extracted and the chloroplast 23S gene was sequenced from the samples in order to identify *Symbiodinium* taxonomy. All samples were most closely related to subclades A4 and A13, which were identical at the CP23S locus. A phylogenetic network was generated to show similarities and differences among experimental samples and established subclade samples taken from Genbank. The phylogenetic network as well as statistical analysis showed differences between the Florida and Belize samples, as well as differences between inshore vs. offshore and fore-reef vs. back-reef samples.

**Damsels in Distress: A Preliminary Assessment of Pomacentridae Extinction Risk**

Allison Roberts (Mentor: Dr. Kent Carpenter)

The family Pomacentridae is among the most diverse of the perciformes, boasting 400 different species of damselfish. These fish are found in coral reefs of varying depths around the world, most of which risk great damage due to climate change. In addition, many species are key components of the ornamental aquarium trade. Considering these threats, the importance of examining the state of Pomacentridae is paramount in examining the health of our oceans. Using IUCN Red List methods, preliminary data suggests some species of damselfish are at elevated risk of extinction.

**Monacanthidae: The Importance of an Adaptable Species in a Changing Ocean**

Alborz Shirmohammadi (Mentor: Dr. Kent Carpenter)

Coastlines are the bridge between human activity and marine life. Increased human activity along coastlines damages and destroys marine communities that live in these shallow waters. Monacanthidae, an adaptable coastal fish family, has shown versatility in finding complementary habitats ranging from temperate to tropical waters. The IUCN Red List of Threatened Species assessment of the conservation status of threatened species shows the Monacanthidae survivability fares relatively well compared to other families within coastal marine communities. This presentation discusses the importance of these fishes, and outlines reasons to protect and research them.