

St. Mary's Wet Lab Cultivates Coral Clones for Groundbreaking Research with Chesapeake Biological Laboratory

By Joseph McManus

Tucked away in the basement of Schaefer Hall, a unique aquatic ecosystem burbles quietly in an array of plastic tanks. The thrum of a pneumatic pump can be faintly heard, like a heartbeat, sending delicately nutrient-regulated salt and river water through sets of PVC pipes and into colorful colonies of corals, anemones, fish, and other organisms. This is St. Mary's College of Maryland's wet lab, where research on marine organisms and, currently, a coral cloning project in partnership with Chesapeake Biological Laboratory (CBL) takes place.

According to Assistant Professor of Biology Dr. Emily Brownlee, St. Mary's began working with CBL at the beginning of this summer, providing corals from our wet lab for research about the effects of oxybenzone, a chemical commonly found in sunscreens, on coral reefs.

Oxybenzones end up in coral reefs, according to Brownlee, because "Essentially you have a lot of tourists who want to see coral reefs; they don't want to get burnt; they're typically pale, so they're putting on all these sunscreens." The study examines the ways in which these chemicals in sunscreen contribute to coral bleaching.

Assistant aquarists Nhu Chau and Ava Chrisler have been cloning corals from the wet lab this summer to be sent to CBL for a study led by Dr. Carys Mitchelmore. Brownlee explained that these corals are an aggregate of polyps, or tiny sea anemone-like organisms, which have a mutually beneficial relationship with a photosynthetic cell, "almost like an aquatic plant." These polyps can grow and aggregate into new corals, which are then sent to the laboratory.

The wet lab not only functions as a breeding ground for coral clones, but also as an essential resource for student instruction and research. Biology students are encouraged to use the wet lab to conduct experiments for their St. Mary's Projects, and Brownlee uses the tanks in her invertebrate zoology class to demonstrate to students a real-life example of the aquatic environments they study. She also hopes to build an estuarine touch-tank where students can interact hands-on with an aquatic ecosystem.

While SMCM's wet lab has been a sought-after resource for CBL's research and for other labs looking to incorporate our corals, and even our water, into their aquariums, the wet lab is still working on improving issues related to water quality and regulation.

One of these obstacles is that aquarists sometimes find trace amounts of oxybenzone in the lab water. Sunscreens and cosmetics containing the chemical are forbidden in the wet lab, and guests are instructed not to put their hands in the tanks, but Brownlee speculates that, "Oxybenzone can

come from plastics — so any of the piping — and there's a thought that corals can actually make oxybenzone, maybe in response to predation or stress."

Despite these challenges, Chau emphasized, "This is all controlled by undergrad students, which is a really unique experience." Chau explained that student aquarists deal with everything from programming the wet lab's lighting systems, monitoring water chemistry, and maintaining nutrient levels in addition to supporting marine biology research.

On the draw of the wet lab to prospective science students, Brownlee said, "You can get a good marine biology background here, even if you're just a bio major." Brownlee and Chau cite the potential for graduate study at CBL and a growing partnership in the form of grants as well as SMCM students being recruited to aid in the University of Maryland-affiliated institution's research as examples of the benefits of such a resource.

In addition to this potential for student research, instruction, institutional partnerships and cross-disciplinary study, Brownlee also remarked, "Sometimes I will find myself going down there when I just need to calm down and chill out a little bit. It's very beautiful, and it's just such a uniquely balanced system, and when you go in there you feel kind of balanced."