

Amanda Ho

2021 Lee H. Somers Intern

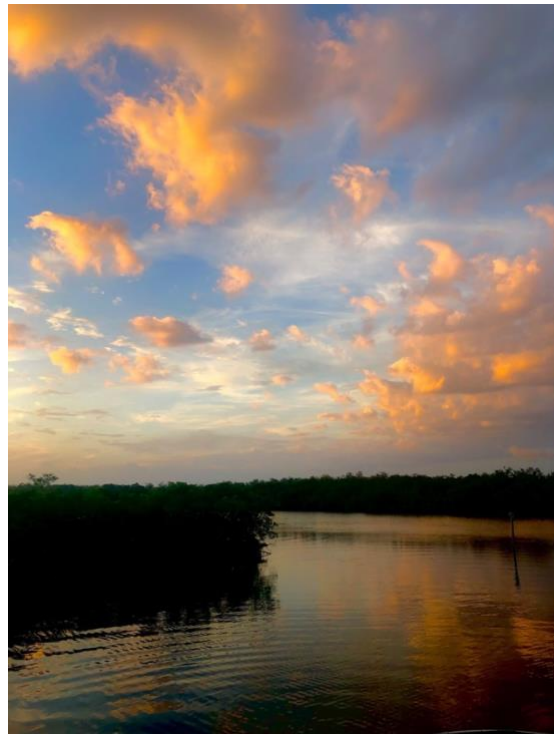
AAUS/OWUSS

Final Report

I only had to dive once to fall in love with it. My first dive was on spring break 2019 in Belize. After frantically finishing my geological oceanography final and managing to catch a flight before the ink was dry, I was finally going to be inside the underwater world I had spent the past 3 years studying. I surfaced feeling inexplicably serene. Diving always seemed so exciting and adrenaline-inducing, yet I was pleasantly surprised to find myself instantly calmed by the vast blue impeding all my senses. It was then that my plan to become advanced open water certified the following summer break was cemented. With more classes in biological, physical, chemical, and coastal oceanography came more and more dives. I was excited to plot a career that would include scuba, which inevitably uncovered the field of scientific diving. It was serendipity that I found the Our World Underwater Scholarship Society® (OWUSS) and, despite feeling like it was a longshot, applied for their Dr. Lee H. Somers American Academy of Underwater Sciences (AAUS) Internship in 2020.

Due to the pandemic, there was a year of anticipation before I finally became the 2021 OWUSS/AAUS Somers Scientific Diving Intern. On the upside, it gave me ample time to complete the hours and hours of NAUI e-learning that this program required, including nitrox, rescue, and professional diving first aid.

I was set up in a sweet little apartment at the Vester Marine Lab of the Florida Gulf Coast University (FGCU) in southwest Florida, greeted



View of the sunset from the Vester Marine Station.

by dolphins swimming right under the balcony with a gorgeous view of classic Floridian mangrove estuary. Most of my days were spent going to the beach and hiding from frequent subtropical thunderstorms that this California girl never got used to.



Gorgeous white sands of Bonita Beach just a 15 minute walk from Vester.

The Friday after I arrived I had pool training as my first official activity. The Dive Safety Officer (Calli Johnson), a divemaster, my buddy, and I started by practicing rescue skills in FGCU's massive swimming pool. Before this, I had never actually dived in a pool – not a lot of wildlife, but I must say the visibility is great. I hadn't done any lap swimming in over a year at that point, but I am pleased to announce that I easily completed the 2 minutes of treading without arms, full lap on one breath, object retrieval from the deep end, and 18-lap swim on the first try. No need for applause. Reviewing air sharing, rescue, in-water CPR techniques, etc. completed our training for the day and we were ready to put ourselves to the test the following week in the ocean.

After a weekend spent at the beach, I got to join the DSO (Calli Johnson), Vester's research coordinator (Adam Catasus), and research assistant/divemaster (Alex Donnenfeld) on a sampling trip to the keys, where we were met with rough conditions. My buddy and I made sure to take lots of Bonine after that. Our days there were spent collecting samples of *halimeda* and *dictyota* algae from various sites around Tennessee Reef Lighthouse. After each dive, we would

process the samples to gather the epiphytes growing on the algae to later be tested for ciguatera, a potent toxin that causes a host of neurological symptoms. We had to quickly process the samples on the rocking boat to preserve the cells. And with only a small portion of sample water lost to the deck, we shook up the samples and poured them through sieves until we had enough isolated epiphytes to gather into test tubes.



Test tube containing a turf sample.

When we returned to the Keys Marine Lab where we were staying, we continued our rescue certification requirements by doing a standard CPR/First-Aid course. I had done this course every 2 years since I was 16 and it was just about time for another refresher. I was outvoted and we ended up doing a majority of the course outside under the Marine Lab's pergola. As part of the course, we measured each other's heart rates, which were around 120 bpm thanks to the Florida summer sun.



Amanda Ho (left) and Calli Johnson (right) heading out to do the first aid/CPR course.

But the day was not over yet. After a day on the boat, we got right back in the water for some night dives to deploy screens that would collect more epiphytes. That was easy enough, except that my flashlight hardly worked and I was so exhausted I put my wetsuit on inside out.



Amanda Ho sporting the new inside-out wetsuit trend.

Our night dive was just outside the Keys Marine Lab in the 5 foot deep lagoon. I surprisingly didn't find it too troublesome to stay neutrally buoyant in such shallow water, which was all the better for seeing the abundance of lobster skittering around the sea floor.

The next day, we did the exact same thing: algae collection, on-boat sample processing, and night dives to collect the screens. My buddy and I went by ourselves for the screen recovery. As our supervisors watched our pool of light just missing our desired destination and then turning around and just missing it again,



Amanda Ho smiling on the last sampling day in the keys.

we surfaced (that is we stood up – again it was 5 ft deep) and made our way to the screens. So with some spotty navigation, we successfully recovered the epiphyte-covered screens on our own. One of us scooped the screen into a Ziploc bag while the other cut the wires connecting it to the weight and buoy that were brought in, as well.

On the last day, we did, surprise, the same thing, but finished with performing our open water rescues from depth. This task was much more difficult than I was expecting. We were in a fairly strong current with choppy surface conditions making in-water rescue breaths and the unconscious diver tow all the way back to the boat, that I swear was moving farther and farther away, extremely tiring. Luckily, my buddy and I both survived and officially completed the rescue diver certification.



Amanda Ho (center), Sam Ainsworth (left), and Alex Donnenfeld (right) headed out on a night dive.

At Florida Gulf Coast University there were a few ongoing research projects I helped with, including seagrass collection. I joined a grad student and some undergrads on a day of seagrass sampling out in Estero Bay right behind the Vester Marine Station. The point of this project



Seagrass sampling using quadrats in Estero Bay, FL.

was to collect data for ongoing monitoring.

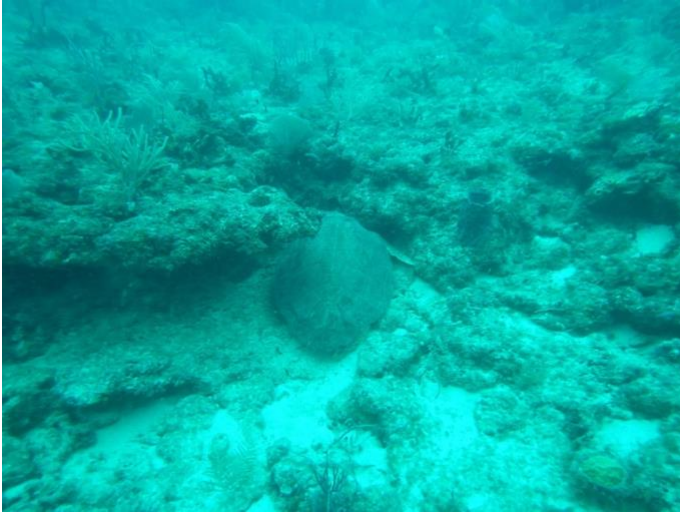
We met at the boat at 7:45 am to go over the day's briefing. At each site, we were to snorkel out, randomly drop our quadrats, and gather seagrass species, percent coverage, shaft height, algae coverage, and presence of oysters. The bay was perfect for this type of sampling, since no site was too deep to swim down to and the water was warm. Spurred by the captain's wonderful renditions of various sea shanties, we worked record fast and managed to do 20 sites in about 7 hours. Then we docked, washed, and went home.

Our next dive training session was done on Florida's Eastern Coast at a reef site called Ant Mounds off Deerfield Beach located North of Fort Meyers. Here is where I did my first ever nitrox dive with a 32% oxygen mix. We analyzed our tanks and calculated our dive based on dive tables to hone our math skills from the e-learning before letting our computers do the calculations for us and headed down.

On the first dive, we once again collected *halimeda* and *dictyota* samples followed by on-boat processing. Then we switched our tanks and did a nice fun dive along the southern portion of the reef. This site had dozens of barrel sponges and a visiting loggerhead sea turtle. Many people have told me they prefer nitrox because they are



Amanda Ho collecting halimeda algae off the east coast of Florida.



A Loggerhead turtle resting off Deerfield Beach.

noticeably less fatigued after diving, so I was intrigued to try it myself.

Unfortunately, I did not notice any marked improvement in energy, but then again, I normally don't feel exhausted after diving (unless I've been taking sea sickness medication – we all know how that goes).

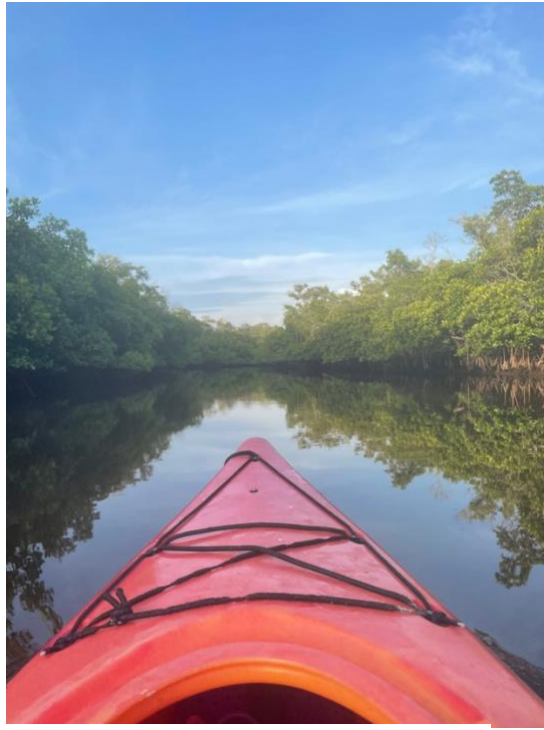
The following weekend, a couple of new friends and I went on a long journey through Estero Bay. Using the kayaks available at Vester, we spent the day exploring the mangroves and surrounding beaches. The main goal of this trip was to get my scientific diver certification; however, my other, equally important goals, were to sight classic Floridian fauna: alligators, manatees, and Burmese



Amanda Ho (center) with new friends from Vester Marine Station on a sunset kayak.

pythons. Burmese pythons were crossed off the list when we saw one as roadkill, which was indeed good enough for me. I checked off alligators during the second week on the drive back from the keys when we spotted some swimming on the side of the road that runs through the

everglades aptly named Alligator Alley. On this fateful day, we spotted manatees swimming just meters from our kayaks, looking adorable as ever. Check.



Shot of Estero Bay from our kayak.

The following Wednesday was our last day of diving and definitely my favorite day of all, despite having to wake up at 3:00 *in the morning* for it. Although I set 15 alarms, my worst fear realized and none of them actually went off, but somehow, I miraculously awoke at 3:20 *in the morning* anyway. We all successfully met at the dock shortly after 4:00 *in. the. morning.* to load up the vessel and depart on a 3 hour boat ride to the first sampling site 80 miles off the coast of Ft. Myers, FL. Thankfully, the conditions were smooth and it was surprisingly relaxing to be so far from land. My superpower is being able to fall asleep whenever I am in motion, something about the hum of the motor I'm told. So I napped the entire ride there and awoke to find my throbbing fatigue-headache completely gone.



*A Mako shark adorned with sargassum spotted 80 miles offshore in the gulf
c/o Alex Donnenfeld.*

My fellow two AAUS students, the captain, and myself were left to snorkel and relax, while our DSO, a divemaster, and the research coordinator went on a tech dive to evaluate a potential site for red tide research. We snorkeled around the boat looking at small schools of fish and a curious barracuda in stunningly crystal clear blue water. Quite suddenly, we made our way back to the surfacing tech divers only to see they had made a new friend: an unwavering, adequately-sized, silky shark. We definitely needed a bigger boat. Note, people are less receptive to shark humor when they are actively in the water with one. Shortly after we began to maneuver our boat toward the next site, we noticed another dorsal fin in the water. This fin belonged to an indifferent mako shark. In contrast, I was beyond stoked; I'd only ever seen nurse or black-tip sharks till then.

After gawking for the requisite amount of time, we carried on with research. I was designated the scribe and we took down YSI and CTD readings at depth and at the surface, while others on board gathered water samples at each of the 6 sites in the gulf. The data would be sent to Fish and Wildlife for an ongoing red tide monitoring project. At the final site, we geared up our tanks to deploy sediment traps at a site where abandoned cement structures had begun to become an artificial reef. After my personal record of 14 hours at sea, we got back to the marina at 7:00 pm only to begin the long process of unloading and washing the boat.



Amanda Ho deploying a sediment trap.

After that day, was my last weekend at Vester in Bonita Springs, Florida and I made sure to spend it soaking up (not too much) sea and sun. It was strange to be done after being there only a month and only diving on 5 separate occasions, but I was glad to be able to squeeze it in with the new normal of today's world. It was an experience I won't forget, especially since I've just written ten pages about it. Now I just have to use all of these wonderful new certifications to continue to learn and grow as a scientific diver.

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Heather Albright (Operations Manager)

Dr. Lee H. Somers (Past President - *Dec.*)

Our World Underwater Scholarship Society:

Roberta Flanders (Executive Administrator)

Martha Sanders (Treasurer)

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Jenna Clos (AAUS Somers Internship Coordinator)

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Claire Mullaney (VP Internships)