DANIEL LEE INTERNSHIP RECAP Summer 2020

|  |  |
| --- | --- |
| **KLAC 2020 Internship Report-- Daniel Lee** |  |

Sat, Sep 5, 2020 7:30 pm

**Lee, Daniel** (dal3@williams.edu)To:you Details

Dear Mr. Cart,

 Thank you so much for a great summer and the package I got this past week--I will definitely be wearing that hat and the sombrero, which has turned out to be quite lucky (went 4 for 4 on 70 lbs. yellowfin in a short offshore trip)! It was really nice of you to think of me.

 How are the lakes now, any noticeable difference? Are you back north in Connecticut? Also how is Christian, is he feeling any better?

 Apologies for the delayed response. I have fried my third logic board in the past year (Apple quality has really declined). I have had the report done for a while but was waiting for my computer to come back from Apple.

 Thanks again for a great summer experience—you really made it the best.

 Daniel Lee

 During my internship at the Key Largo Anglers Club, I worked on two main projects. The first project was making sure the algae in the lake system was under control. On my arrival at the Club, the lake system, composed of five lakes and around a million gallons of brackish water, was covered in dead and decaying mats of filamentous algae. My initial task was to physically remove the decaying algae from the lakes. After the physical removal of the algae, I came up with sustainable, economical, and ecologically safe solutions to keep the filamentous algae at bay. My approach to the problem was a multi-tiered introduction of native species from microorganisms to fish in order to control the algae naturally. Each organism was selected to control the excess nutrients spurring the algae blooms. I consulted with University of Miami Broad Key Research Station marine biologists, who specialize in fauna across myriad trophic levels. With the help of these specialists I was able to address the algae issue at three stages: before the bloom (excess nutrients), during the bloom, and after the bloom. I added microbes found in the coral reefs to the lake with sand (that contains the microbes). I strategically put the sand in filter boxes so the microbes would be spread around. In addition, the sand absorbed excess nutrients as well as decaying algae that had sunk to the bottom of the lakes. In order to deal with the algae blooms in progress, I introduced parrot fish, spiny lobster, mussels, oysters, and blue striped grunts to the ecosystem. Each one of these organisms approaches the algae bloom in a unique manner which controls the filamentous algae if and when there is a major bloom.

Another project I was involved with was my studying and learning about the local Keys ecosystem from experts in the field. This aspect of the internship was my favorite part--from assisting in research collecting samples by dragging a purse seine net across the sea grass flats to spotting the extremely rare saltwater crocodile.

I was impressed by many of my colleagues, including my direct supervisor, who treated me very well and from whom I learned a lot. The living accommodations were also more than adequate; I had a small apartment to myself and I ate with other staff in the Club kitchen five days a week, which gave me a good glimpse into the life of the longer-term employees. The biggest hardship was the heat, which made working hours quite different than back in the Northeast, and dealing with COVID, which started out manageable and ultimately ended my internship slightly prematurely. All in all, however, it was a fabulous experience and I am extremely grateful.

            For my microscope recommendation I would suggest: <https://www.amazon.com/OMAX-40X-2000X-Biological-Microscope-Mechanical/dp/B00AEJ9FJ4?tag=giggleoptix-20#customerReviews> , which has the capability to look at microorganisms and bacteria.  This item will help future interns fully grasp the KLAC lakes ecosystem.