

JOHN G. SHEDD AQUARIUM HIGH SCHOOL LAKE ECOLOGY

MENTORSHIP

Sam Borstein

This was by far one of the best Summers I've ever had. As many GCCA members know, I'm going to college soon and want to major in Ichthyology or Aquatic Biology. Towards the end of February, I decided to apply for to the Shedd Aquariums 2008 Lake Ecology Summer mentorship program. I thought this would be a great experience that would help me later in an aquatic-related career. After writing two essays and an interview, I was finally accepted!

The Shedd Aquarium High School Lake Ecology program is an educational program that focuses on the biology of the Great Lakes. They teach about all the lakes, but with a focus on Lake Michigan. The main part of the program is spending a week on Wisconsin's S/V Dennis Sullivan, the State of Wisconsin's tall ship.

Towards the end of July, I along with 29 other classmates, began study at the Shedd. It was nice that it was close to Burnham Harbor, which allowed me to fish some mornings before classes. Classes were fun and exciting and covered everything about the Great Lakes—history, geology, biology, management, invasive species, and more.

The trip was split into groups of fifteen students each. On August 14th, me and fourteen other students drove to Milwaukee to board the S/V Dennis Sullivan. We spent the day at Discovery World Wisconsin, a museum in Milwaukee where the tall ship docks. It is a nice museum that has some cool contraptions, a great Les Paul guitar exhibit, and beautiful aquariums and terrariums featuring animals from the Great Lakes. The museum also had exhibits of tropical saltwater fish. The coolest animal they had was a baby paddlefish, an huge and awesome planktivore that is critically endangered. My favorite exhibit was the sturgeon touch tank. They had some three-foot sturgeon that would swim up and let pet them. Being that close to the fish, you really get a sense of how prehistoric they are.

Due to some boat challenges, we spent the first night aboard the S/V Dennis Sullivan in port. It is a beautiful 137 foot long and 97 foot tall schooner, and is a replica of the great boats that used to sail these parts. The next day, we left dock and went on our way, a trip up to North Manitou Island. During this time, we broke up into groups and started doing samples in our respective groups such as water quality, plankton, and sediment.



Another project aboard the boat involved invasive species. The ones we learned about were the rusty crayfish, a crustacean native to the bayous of the south that was released as bait, the sea lamprey, zebra and quagga mussels, and the round goby, the last three being released from ballast water.



We finally arrived at Manitou Island, which is a beautiful Northern Michigan national park. The island once was a relatively successful agricultural area, but now is uninhabited except for the National Park Service staff that are stationed at the island. North Manitou Island is known for the Sleeping Bear Dunes. We enjoyed an eleven mile wildlife on the island. On the way, we saw many animals including some beautiful toads and frogs, snails, insects, spiders, and snails. We stopped by a little lake and I was able to see some young bass in the shallows and some new painted turtle hatchlings. In the middle of some cattails, was a beautiful garter snake.

We headed up through the dunes to a high elevation to have lunch. At more ore than a couple hundred feet above sea level, we had an excellent view of the lake and could see massive shoals of bait fish swimming off in the distance. On our way back, we were able to walk through a beautiful cedar forest and view some of the old shipwrecks around the island.

We were going to do a dive on one of the shipwrecks but because of poor weather we had to move. We ended up at Traverse Bay, by Traverse City—a beautiful quiet area. We took a walk on the beach there were we found plenty of Petoski stones. We were in an excellent area for diving, in the shallows with a good drop off. We saw some very large smallmouth bass, salmon, perch, and of course the nasty round goby.

Near the end of our trip, we concentrated on our research as we headed back to port in Milwaukee. Our research showed the sediment was good, but of course filled with unwanted zebra and quagga mussels. The plankton research showed a relatively healthy amount of plankton which were most abundant at night. Unfortunately, there were some invasive daphnia species such as the spiny water flea. My group studied water quality was interesting for me from a fishkeeping standpoint. Temperature and dissolved oxygen were normal, but the pH shocked me (and some of the Shedd staff). On average it was 6.6. That is really low. My Chicago tap water is 7.6 pH and I know some club members whose is as high as 8.6. Our highest reading was 7.0—neutral. There was not a substantial rain and we tested at various depths and areas. The only thing I can think is we tested many bays; could bays have a naturally lower pH?

We finally returned to Milwaukee and I was sad to go. It felt weird walking on flat dry land at first and I didn't want to leave. Luckily a few weeks later, I was able to see some of the friends I made. I was invited to by the Shedd to take part in a press conference held by Illinois Senator Dick Durbin where he announced his plan to seek five billion dollars in funding for Great Lakes conservation.

Overall, this mentorship was one of the best experiences of my life. I won't forget the friends I made and the fun we had. To be honest, I still miss the boat. I'd like to thank all the Shedd staff and the crew of the *S/V Dennis Sullivan*. Hopefully next year I'll be able to participate in another Shedd Aquarium Mentor Program, High School Marine Biology in the Bahamas!



▲ (L) SENATOR DICK DURBIN,
(R) SAM BORSTEIN



PETROCHROMIS, MY WAY

Mike Garibaldi

Over the last year I have been fooling around with several types of *petrochromis*. I have brought in wild orthognathus "tricolor", sp. famula "blue fin" and sp. redfin "longola". In addition to the wild fish, I brought in sp. texas "Tembwe" and ephippium "saddleback". My observations follow.

Petros are similar, in a lot of ways, to *tropheus*. Both are live in the surge zone and both chew the aufwuchs from the rocks. Looking at a 4" *tropheus*, it's easy to see that it could live on algae. How a 12" petro survives solely on algae is beyond me. The biggest difference is size and aggression. *Tropheus* chase for a few feet; petros chase until the other fish is out of the tank or dead. The nice thing is that once equilibrium is reached, petro tanks are pretty easy to maintain.

Typical Tank Set up

I like 125-gallon bare-bottom tanks with 5 or 6 Hydrosponge V sponge filters running as much air as possible through them. In addition, I use a Quiet One powerhead driving two Hydrosponge V "pond" (larger pore) filters. A couple a rocks, maybe some big PVC fittings, but no sand or gravel. No plants either. The heaters are set to 76 degrees, water changes are 60% weekly. I use high quality power compact strip light fixtures to promote the growth of algae. I never see algae and I don't keep any bristlenose cats in the tank. The petros scour every surface of anything that is food. As a test, I used the same light fixture in another tank with some non algae eating fish – I couldn't see inside the tank after a week.

The funny thing about petros is that they pretty much ignore anything that isn't a petro. Mbuna, *tropheus* as tank mates? Sure. They won't accomplish anything, but you can do so if you wish. I personally like species tanks when I keep fish. The only time I mix fish is if I am tight for space (always!) or if I am trying to ease the aggression levels. Whatever fish you