

Boyd Island Shoreline Species Inventory with Fleming College Credit For Product

We have officially started our 2016 Fleming College Credit for Product Project! We are working with a group of three students from Fleming College: Nadine Elmehriki, Nadine Roy, and Tessa Arsenault with Colleen Dempster as lead mentor.

As the largest “undisturbed”, and recently protected, island in the Kawartha Lakes, we thought it would be important to assist the KLT with some of the first species inventories on Boyd Island. This baseline data will inform the KLT on how to manage invasive or rare species, and will provide an interesting comparison to the KLSA's 2008 aquatic plant management study. Naturally, our first question is “*what is there?*”, and our focus is on shorelines and aquatic species.

In order to get our bearings and inform the study design, the students, Mike Dolbey, Sara Kelly and myself first visited the island in mid September. We noticed there are many sites which were used as camping/campfire sites, and these sites have invasive plant species such as coltsfoot, which could be seen from shore. This begged a second question, “*Is there a different in plant/benthic invertebrate communities between **disturbed** and **reference** sites?*” -- “disturbed” being classified as the campfire sites and reference sites as a nearby site that is not a campfire site.



Pics: Site visit day with Colleen Dempster, Nadine Roy, Tessa Arsenault, Nadine Elmehriki, and Sara Kelly. (not in photo: Mike Dolbey and Shari Paykarimah).

Shari Paykarimah, who is both on the board with the KLSA and the Stewardship and Volunteer Coordinator with the KLT, provided background info including a map with all the campfire sites on the island. It is important to note that the KLT is working very hard to restore the island by removing garbage and man-made structures such as fire pits, but the campfire sites are still noticeably disturbed.

Over the next week, the students gathered all the supplies that would be needed to sample plants and benthic inverts. This includes D-nets for kick and sweep, a GPS for confirming site locations, and the usual aquatic paraphanelia: buckets and hip waders. From the map, the students randomly selected sites from the East side of the island (where the slope in the water allows for plant transects and benthic sampling to be manageable). The students also prepared and brought data sheets.

We are now ready to start our first day of sampling!

We set off for our first field day on Monday September 26th to gather data on 1. aquatic plants, 2. shoreline plants, and 3. aquatic benthic macroinvertebrates. The weather was cool, and the forecast

called for showers in the afternoon. With a bit of a slow start (boat needing to be warmed up), we landed on the island at 10:00 and delineated the first site. Site 1 – a well-used campfire site on the north-east corner of the island. We measured out a 10 m long transect along the shoreline and randomly determined a transect for aquatic plants and a transect for benthic invertebrate collection, up to 0.75 m depth (to be easy on the students – it's fall now after all and no one was prepared to go swimming!). Tessa performed the first “kick and sweep”, Nadine R the first aquatic plant collection (which was easy because there were none due to a bouldery substrate), and Nadine E and I identified shoreline plants at three random quadrats along the shoreline.



Nadine R, Tessa, and Nadine E as we land at “Site 1 – Disturbed” on Boyd Island, Sept 26th.

After making all the important notes and observations on the field sheets the students had prepared, we moved 20-30m away from the **disturbed** site to a **reference** site, and performed the same procedure. We aimed to switch up who was doing what task so the students would get experience with all sampling techniques and identification practice.

Once complete, we moved to Site 2, which was in a nearby bay. We moved through this site a bit more quickly, and stopped in a scenic spot to have lunch. Looking at the clock and the clouds, we made the call to head in. It was 2:00 and we still had to identify our benthic invertebrate collection. According to the Ontario Benthic Biomonitoring Network, 100 bugs would have to be identified from each of our four samples. So we retreated to the James McClean Oliver Center's cabin just in time to beat the rain.



Picking through benthic invertebrate samples, not binging on ketchup and mustard, at the ecological centre's working cabin.

Indeed, it took nearly 2 hours to complete our benthic invertebrate identification, and we wrapped up the day by discussing what was done, how it can be done better next time, and our next field sampling date. The day actually went so well, we agreed to keep the same protocol but simply work faster and aim for 4 sites to complete our goal of 6. If we are only able to do 2 sites again, we will have to come back for another field sampling day, because it is very important that we have sampled enough sites if we are going to have a sound statistical analysis. Fall sampling can put a chill in your bones, and benthic invert counting can be a long and arduous process. The other change we would make would be to bring extra water for making tea at the end of the day in the cabin.

Overall the day was a big success! The next sampling day was agreed to be Friday September 30th, followed by Monday October 3rd if needed. We seem to have the sampling down, but wouldn't mind a few extra hands in the afternoon (around 2:00) at the Oliver property if anyone has benthic invertebrate identification skills and would like to help. Anyone? Anyone?

Stay tuned for our next update after Friday!