

Journal Entry #5 – Water Testing and Mussel Survey

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This week was an exciting week! As always we started off with the presentation overview of what happened since we were here last week. The high for the day was 66°F and the low was 41°F. There wasn't any precipitation this week so the creek level went down to within its typical level for this time of year. The game highlights from the game cameras included lots of Wild Turkeys, a Gray Fox, a Coyote, a River Otter at Otter Pond, a Striped Skunk, a Beaver (a different Beaver than last week), a Grey Squirrel, and even two Opossums traveling together. The two Opossums together were quite unique as Opossums are solitary animals except for when they have young.

While at the Learning Center, Anna also taught us how to calibrate the Yellow Springs Instruments (YSI) meter. The YSI meter is used to measure the temperature, dissolved oxygen, and pH of a body of water. To calibrate the pH Probe on the YSI meter one first needs to prime the



Thompson Creek



storage container. To prime the storage container you first flush it three times with deionized water (distilled water will work as well) and then rinse it out with your first solution three times. To rinse out the storage container a little bit of solution is poured into the container and swirled around so that every surface is covered. The waste solution and distilled water (in this case) is dumped into a waste container to be properly disposed of later. After the storage container is primed it is filled with the same solution until it covers

the pH Probe. The pH Probe then reads the pH level and is calibrated to be correct and then the used solution is dumped into the waste container. These steps are then repeated twice more with solutions of different pH levels.

After the presentation and calibrating the YSI meter we donned some waders and drove to Kayak Put-In on the side-by-side vehicles. When we arrived at Kayak Put-In at Thompson Creek we immediately got to work. Anna set up the YSI meter and showed us how to put it into the creek without damaging it. Following this, Anna also showed us how to measure the turbidity (cloudiness) of the creek. The



turbidity of the creek was 8.82 FMU which is about normal for Thompson Creek. We then learned how to use the FlowTracker to measure the flow of the creek. Anna explained to us how to measure the flow rate using the FlowTracker. To measure the flow of the creek a tape measure is first strung across the creek, or whatever body of water you want to measure. A water flow measurement is then taken at every foot along the tape measure. All of these measurements are then averaged to determine the flow rate of the creek. To take a flow measurement the



Flow Tracker

FlowTracker is first lifted so that it is not on the creek bed so it can get an accurate reading. The FlowTracker is then set with the water depth and the location number. The measurement is then started, and you need to make sure the flow meter is being held steady and level. You can make sure it is held level using the bubble level on the FlowTracker. You then hold it in place for around 30 seconds or until it beeps indicating the measurement is complete. Afterwards you move on to the next location, a foot to the right. It was cool to learn how this worked as I had never even heard of many of the measurement equipment we used. What was even cooler though was that Aidan, Jamison, and I were all allowed to take a measurement using the flow meter. It was a lot harder than it looked! We then pulled out the YSI meter and found that the creek had a dissolved oxygen (DO) level of 98%, a temperature of 13.5°C which is 56.3°F, and a pH of seven point four (7.4) which is well within the acceptable pH range of six and a half to eight (6.5-8).



Thompson Creek

In addition to measuring the quality of the water we also surveyed for Mussels. To see the Mussels we used bathyscopes. A bathyscope allows you to see underwater as it has a clear bottom. The scope is put over your face and pressed into the water until you can see the bottom clearly. It allows one to see the creek bed without utilizing scuba gear. We were warned that last time they served they didn't find any Mussels except for one spot and the only person who had found some had used scuba diving gear. Using the bathyscopes was very interesting as while it made it easy to see the bottom of the creek it takes a toll on one's arms since the water pushes back on the bathyscopes. They also didn't work well in general for me as I wear glasses so it made putting my face close to the bathyscopes almost impossible, so I had to hold them farther away from my face to be able to use them.

We spent a good long while just searching the creek for Mussels. While we initially didn't find any Mussels, we did find some sort of animal that looked like little worms that were anchored to rocks in the creek. I did a little research and am pretty confident that what we saw were black fly larvae. Black flies are environmental indicators which mean that they show whether the health of a stream/creek is good. Blackflies are tolerant to pollution, especially organic pollution such as what results from agriculture. They thrive in flowing water so spotting them or their larvae is



Black Fly Larvae on Rock



Black Fly Larvae on Rock

a sign that your stream/creek might have some natural pollutants such as chicken or cow manure. This is a reasonable possibility as the Southern 8ths farm is surrounded by agricultural lands. While searching for Mussels I also found a live Asian Clam. Asian Clams are invasive to Thompson creek and are competition to the freshwater Mussels we were trying to find. I was the only one who found a live Asian Clam and only one was found so it showed that they weren't abundant in the area. While looking for the Mussels upstream Anna saw a couple Wood Ducks flying but by the time I turned around they had gone.

We eventually moved downstream more looking for Mussels since there were many holes and sunken trees upstream that was making it difficult to traverse and look for Mussels. While downstream Morgan sat on a log that had yielded the Mussels the last time that the Southern 8ths Crew surveyed for Mussels. This day though the creek level was back to a more typical height for this time of year so the log was not fully submerged. David pointed out some Raccoon and duck prints that were in the sediment behind the log. He hypothesized that the Raccoons and birds were searching for Mussels as well. While standing near the log I was looking at the pretty rocks that were in the



Raccoon and duck Prints

creek. The creek had some bright red calcite and some blueish-greenish rocks randomly dispersed along the bottom. I was just looking at the rocks when I noticed something weird. I picked it up only to find a Mussel! I couldn't believe it! Here we were looking for Mussels, not finding any, and I found one without even using the bathyscope! What was really funny though was that as we were beginning to look for Mussels, Jamison had turned to me and said "If anyone is going to find a Mussel it is going to be you!" and when I found the Mussel he just shouted "I knew it!". Turns out I found the most common freshwater Mussel found at Thompson Creek,



Eastern Elliptio Freshwater Mussel

the Eastern Elliptio. What made the find even better though was that five minutes later we grabbed all of our things and headed back to the Learning Center to take off our waders and head home. This was an amazing week and next week we get to don the waders yet again to look for Macroinvertebrates!