Study Site

Samples for the experiment were collected from Lancer Park Pond, a stormwater pond in Farmville, VA. The pond has a surface area of ~0.06 ha and a maximum depth of 1.5m. Field sediment samples were collected from the littoral zone on May 29, 2014, using an Ekman-Dredge. The sediments were sieved through a 250 µm mesh net and retained in buckets. Since, by definition, a “macroinvertebrate is any invertebrate that is 250 µm or larger,” the mesh net effectively eliminated macroinvertebrates from our samples. The CPOM retained by the net was placed into 1 liter bottles.

To determine the CPOM density of Lancer Park Pond, the contents of the 1 Liter bottles were rinsed with DI through a 1mm sieve. All retained material was then placed into a pre-weighed paper bag. The bags were then placed in a drier at 50 degrees Celcius. Once dry, the bags were weighed and the CPOM was ashed at 550 degrees Celcius to determine ash free dry mass (AFDM). The AFDM was used to determine the amount of CPOM, in this case leaf disks, needed to add to the BOD bottles.

The organic matter content of the leaf disks was determined by randomly selecting 5 senescent tulip poplar leaves that were collected from fall 2013. Each leaf was gently submerged in DI water until it was soft enough to core (about 5 min). A single leaf disk (10mm, #5 cork borer) was cut from the leaf blade avoiding the midrib. The disk was placed into a pre-weighed crucible and dried at 50 degrees Celcius, then ashed at 550 degrees Celcius.

An initial water analysis was performed on the water collected to give a nutrient baseline for the ambient replacement water. Dr. Dina Leech filtered 50 ml of the collected pond water through the GFF. Hach test kits were used to measure nitrate, nitrite, ammonia, and orthophosphate.

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|  | Detection Limit | Observation(s) | Result |
| Nitrate | <8.8 mg/L | No color developed | Below Detection |
| Nitrite | <0.066 mg/L | No color developed | Below Detection |
| Ammonia | <0.2 mg/L | Yellow color | Below Detection |
| Orthophosphate | <0.2 mg/L | No color developed | Below Detection |

The BOD bottles were incubated in the dark, at room temperature, on rocker-shakers at speed 8 and tilt 8. To encourage gas exchange in the bottles, the bottles were stored with 15ml of water removed. Thus, the total water was approximately 285ml. At each sampling, the BOD bottles were removed from incubation, and then approximately 68ml of water were drawn from the bottle. 2, 15 ml samples were collected with a glass syringe and placed in 10 ml vials. One vial was sealed and then fixed for Time 0 (T-0). The other sample was placed on the rocker-shaker to incubate in the dark for five hours. The final water collected was for bacterial, nutrient, and absorbence samples. The 3ml bacterial

At the conclusion of the experiment, a sediment sample for C:N ratio and a sediment ergosterol sample was taken from all of the BOD bottles. In addition, in BOD bottles with CPOM, leaf disks were taken for C:N ratio samples and leaf ergosterol samples.