**Introduction**

Organic matter is incredibly important within aquatic ecosystems. Complex food webs are influenced by organic matter by mediating nutrients, metals, salts, and minerals within a system. The role of organic matter does not act solely as a mediator but also one of the primary energy sources within a system. There are three classes of organic matter: coarse particulate (CPOM, > 1 mm), fine particulate (FPOM, <1 mm and > 0.5 mm), and dissolved (DOM, < 0.5 mm). Most of the organic matter that is being brought into a system is leaf litter.

The decomposition of the litter goes through a multiphase process. Compounds that are easily dissolved are extracted from the litter within the first few days, and then the acceleration of microbial activity takes place. Bacterial degradation improves the detritus nutritional value, and is beneficial for zoobenthos to feed on.

Macroinvertebrates are organisms, without backbones, that are visible to the naked eye. These organisms are retained by mesh greater than or equal to 200 to 500 μm. The benthic macroinvertebrates include annelids, oligochates, insect larvae, gastropods, mollusks, and crustaceans. The most abundant macroinvertebrate in freshwater ecosystems tends to be insect larvae. While collecting these organisms in field is needed to preserve them, due to their size.

Macroinvertebrates size ranging from 200 to 500 μm, some may not be seen easily with the naked eye. If organisms are preserved they can be place under a microscope for further identifying and classification. Preservation methods for the study of macroinvertebrates and organic matter have not been readily assessed.

For most studies there has been no preservation of the samples and the bugs were picked live. These bugs tended to be larger species that were easily seen to the naked eye. Formalin has been the common preservation method, yet only a few studies have used ethanol; however, ethanol was used after initial formalin preservation. There have been three trends occurring in the sampling of small macroinvertebrates.

OM and bug samples are taken separately, but this method fails to associate community structures with the OM sample. Doing a live-pick of samples and only preserving the bugs, runs a risk of missing small taxa. Finally, preserving the samples and separating the OM and bugs in lab, can result in introducing preservation artifacts to the OM mass assessment.

We are investigating if preserving the samples in ethanol in field and separating the OM and bugs in lab with result in the introducing of preservation artifacts within our assessments.

**Methods**

*Study Site*

Wilck’s Lake is a manmade body of water located at 37⁰18’13” N, 78⁰24’51” W in Farmville, Virginia. The surface area of Wilck’s is 194760 m2, and the average depth is 2.0 m. Wilck’s Lake is used mainly for recreational fishing and boating. An average secchi depth of 0.6 m, water clarity tends to be affected my algal growth. The average dissolved oxygen level 6.04 mgL-1 and there was not a stratification of the water which results in only an epilimnion level.

*Sample Collection and Processing*

Eighteen Ekman samples were taken from Wilck’s Lake. Samples were collected along a transect line of the lake, and locations within the lake were label from alphabetically; two ekmans grabs were done at each location. Once samples were taken, they were washed through a 250 μm mesh, and then nine samples were stored in 70% EtOH in the field.

In lab the nine control samples, that were stored in water, were washed through a 1 mm sieve the same day; the CPOM was then placed in a drying rack at 50⁰C. One week later the treatment samples, which were preserved in EtOH, were washed through the sieve and placed into the drying rack. The next day a dry weight of the CPOM was taken, and then the CPOM was crushed by use of a mortar and pestle. The crushed CPOM was placed into crucibles, weighed, and then placed into a muffle furnace at 550⁰F. The samples remained in the furnace for five hours to be ashed, and upon removal were weighed before reaching room temperature.

*Data Analysis*

**Results**

There was no negative relationship between the AFDM and the type of sample (F1, 16 = 0.0004, p = 0.99; Fig. 1). Treatment and control samples maintained a relatively similar mass for each location. The mean of the CPOM for the cpom There was a noticeable difference in weight per location; sample A and sample J, which were closer to the shores of the lake had a greater AFDM than that of samples found in the middle of the lake.