

GCA Progress Report, September 2009 – Sarah Schillawski

This past summer has been a very busy and productive field season. My project involves evaluating the factors contributing to the scales of variability in the quantities, composition, and reactivity of dissolved organic matter exported from watersheds to downstream wetland and estuarine systems. Although wetlands contain over 30% of the world's terrestrial carbon, it is not certain how wetlands will change due to human impact and climate change. I hope that by better understanding the present factors, future changes can be predicted and managed. In order to begin on my project, I first had to establish my site. This involved fabricating and installing ten groundwater wells and forty lysimeters in order to collect soil porewater and groundwater. It also included collecting over sixty soil samples. I am delighted to report that just this past week, I had the pleasure of successfully conducting my first water sampling event at Taskinas Creek in York River State Park using these samplers. In this endeavor, the scholarship from the Garden Club of America has been most helpful as it allowed me to purchase soil augering equipment and the materials required to construct and install the wells and lysimeters. It also allowed the purchase of personal protective equipment for three volunteers who assisted me over this summer. Without this assistance, I would undoubtedly still be working on the setup of my field site, rather than on the analysis portion of my project.

My future work will include monthly and storm event monitoring of the hydrologic conditions as well as sampling of stream and wetland waters. These efforts will be complemented by lab experiments that evaluate soil composition and microbial and photochemical factors that control the amounts of dissolved organic matter transported from soils to wetlands and estuaries. With this information, I intend to further our understanding of the reactivity and fate of dissolved organic matter in stream, wetland and estuarine waters.