Intern Alessandra Ceretto’s project, co-sponsored by the DWRC and the UD’s Department of Plant and Soil Sciences was titled “A Biogeographic Investigation of Viral Diversity within the Eastern Oyster, Crassostrea virginica.” She was advised by Dr. K. Eric Wommack of the UD’s Department of Plant and Soil Sciences.

Abstract

The Eastern oyster, Crassostrea virginica, plays a vital role in estuarine environments along the east coast of North America. C. virginica is considered a keystone species, due to its ability to filter large volumes of water and form extensive reefs, which provide habitat for many fish and small invertebrate species. Commensal microbes play an important role in oyster health; however, little is known about the naturally occurring viral diversity within oysters. Even less is known about viral diversity in oysters across different locations. This study uses ribonucleotide reductase (RNR) to characterize the diversity of phages (bacterial viruses) within the mantle fluid of oysters from the Rhode River and Choptank River, as well as phages in the surface water. RNR has been identified as a useful marker gene of viral diversity, and previous work in the lab developed primers that amplify this gene from viruses in oysters. Ultimately, this research provides insight into an unexplored aspect of microbial communities that may impact oyster fitness and lead to improvements in restoration efforts of this keystone species.