

Microplastics Marine Debris Project

Quarterly Update 1 -11-3-2022

The NOAA Marine Debris project in the Choptank River is off to a strong start.

As of October 2022, we have collected samples on six separate occasions, developed the protocols to analyze the samples from both the water and sediment, deployed 10 of the degradation boards, and begun testing the computer model using estimated values of plastic concentration taken from the literature. This summer we worked with three undergraduate interns, two from Chesapeake College and one through the Maryland Sea Grant Research Experience for Undergraduates program. These students assisted in the sample collection, protocol development, and model set up.



Nardin and Pierson ponder what microplastics may be held in this water sample. Microplastics are everywhere, from our tributaries and open ocean to human's bloodstream and the air we breathe.



William Nardin (background) and Iacopo Vona (student, foreground) deploying degradation boards at a marsh site in the Choptank River in September 2022.

The quote for the new SWIR Microscope is in, and we will place the order this week. The samples we are already counting will be reanalyzed with the new microscope once we have it set up and working. This new instrument will help us understand what types of plastic we are collecting in our samples, which is a huge leap forward from our initial measurements of the amount and size of plastic particles.

Thank you for your support of this project!

Drs. William Nardin and Jamie Pierson

In the coming months we will begin sorting plastics from our samples to better understand how the concentrations of plastic vary in different locations in the river and in different seasons, assessing the degradation boards to see how different plastics break down in the environment and figure out what grows on them, and further developing the model.



Summer REU student Sarah Naimy, intern Kacey Kaub (Chesapeake College), and HPL graduate student Kerry Burns collecting a sediment sample for microplastic analysis in the Choptank River in June 2022.