Georgia Caplen

Faculty Advisor: Professor Susan Allen-Gil

Are your clothes harming *Daphnia magna?*

The majority of scientific research regarding microplastics has focused on the effects microplastics and microbeads on microorganisms. Microplastics is an umbrella term that includes plastics that have been broken down from larger plastics or microbeads that are manufactured and found in products such as toothpastes and facial cleansing soaps. However, microfibers are another kind of microplastic that are found in fleece materials and affect the health of microorganisms. By focusing on microfibers, my work has the potential to contribute new scientific information about their potential hazardous effects on freshwater ecosystems. I am analyzing the effects that microfibers have on the mortality rates of *Daphnia magna*, a microorganism commonly found in freshwater ecosystems. This is relevant for the public knowledge because microfibers are present in our water column and end up in lakes such as Cayuga Lake, located in Ithaca, New York. These microfibers can move up in the food chain and ultimately be found in fish that may be consumed by the public. For this experiment, microfibers were separated from fleece and created two separate microfiber treatment solutions to test its effects on *Daphnia magna*. Two groups of 15 *Daphnia magna* were exposed to each microfiber treatment solutions of 0 fibers/liter (negative control), 124 fibers/1 liter, and an additional solution with higher concentration of microfibers than the environmentally relevant level. This small-scale experiment addresses a larger issue within the freshwater environment due to the increasing concentrations of microplastics found in current freshwater ecosystems. The increasing microfiber concentrations, consumed by smaller microorganism, may begin to bio accumulate through freshwater food chains and affect larger fish populations that are consumed by human populations worldwide.