



ADVANCING SOLUTIONS FOR MICROPLASTICS IN LAKE TAHOE

Microplastics are considered an “emerging contaminant,” meaning they have potential adverse effects that are not well understood. At DRI, we are working to understand their impact on our local environment.

Monica Arienzo, Ph.D., is assessing microplastic pollution in Lake Tahoe. This naturally formed alpine lake is protected by numerous state and local laws with the intent to preserve lake clarity, ecosystem health, and drinking water quality. Through funding from the National Science Foundation, Dr. Arienzo and her team are conducting a watershed scale assessment of microplastic pollution in the Lake Tahoe watershed. This includes measuring microplastics in Sierra Nevada snow, downstream rivers, and important drinking water resources.

Dr. Arienzo is also working to answer several questions related to microplastics, and she received an award from the National Science Foundation for an infrared microscope, the first of its kind at DRI. This instrument provides fundamental information on the molecular structure of various compounds, and it has helped Dr. Arienzo and her research group to identify plastic type. For example, her group has identified nylon fibers in snow from

the Sierra Nevada, and this information can help identify potential sources of microplastics to the environment.

One of the first uses of this instrument was analyzing samples provided from the clothes dryers of a group of volunteers from the League to Save Lake Tahoe. Using a dryer lint catcher, designed at DRI by Dr. Arienzo and Meghan Collins, M.S., volunteers caught and shared samples of dryer lint. Dr. Arienzo and her team are now working to determine just how much of the lint is made up of synthetic fibers and then better understand the connection between synthetic clothes, dryers, and microfiber emissions into the environment.

In addition, Dr. Arienzo and her group are testing the efficacy of microplastic collection methods. Their work was published in *Environmental Science & Technology Water* journal earlier this year. They present a method for microplastic sampling and laboratory analysis applicable to a range of sampling locations and sample types. This sampling method has been tested in the laboratory as well as various locations in the Sierra Nevada and Las Vegas Wash.



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