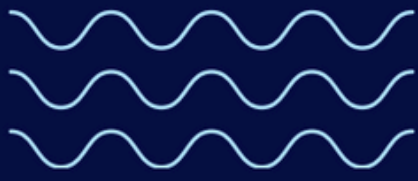
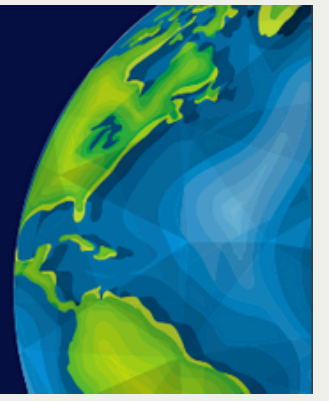


2024 Eco Ambassadors Solutions Lab



Oceans, rivers & water bodies in
our backyard



BLOG



On April 10th and 11th, high school students from Parsippany and Millburn, New Jersey, got first-hand experience in investigating microplastics in their surroundings.

The two-day lab visits to Lamont Doherty Earth Observatory of Climate School, Columbia University, began on a more personalized tone, when the lead research mentor, Dr. Joaquim Goes, requested students to bring a few articles of clothing from home and locally-purchased shrimp from grocery stores. The lab visit began with a casual and informative conversation surrounding the major trends in microplastics around the world: the prevalence of microplastics in detergent, cosmetics, food systems and new research linking microplastics to human health.

Dr. Goes cited examples of how it has affected food, water and security issues per his observations during his research. Dr. Goes also shared the promising future of tackling the microplastics crisis, including the discovery and testing of bacterial enzymes and filters for various machines.

After the overview of microplastics issues, students geared up in their white lab coats to delve into microplastics investigation. They got their hands dirty (literally!) by deveining shrimp to create lab samples and



washing their clothes to create lab samples from the laundry water. The students also collected water from a local pond and tested laundry sheets– all activities to create lab samples to test for presence of microplastics.



After an active and busy time in the lab, the students were asked to reflect on their biggest takeaway from the lab activities.

Below are comments and reflections from the students:

“My biggest takeaway, after seeing the level of care and methodology that was taken to analyze the samples, was that

the collection of data needs to be as refined and unbiased as possible. On an environmental level, I further learned about the extent of plastics in our surroundings - Prof. Goes even mentioned that it was in the air we breathed.”

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“My biggest takeaway is that as the issue of microplastics is increasing, so is the risk that we all stay healthy. Recent research has introduced the idea that microplastics in our blood could be associated with tumors, dementia, and other illnesses. This information makes it even more critical for us to test and find solutions to the problem.”

“My takeaway would be that data collection is fundamental to efforts to solve problems like microplastics. We needed to be extremely precise with our sequestration of microplastics from the environment, taking a rigorous approach to isolate them from organic material like tissue or fabric.”

The end result of this rigorous technique was a host of images that were useful in helping us visualize the concentration of microplastics in different materials and environments.



When the representatives from the NJ/NY sea grant came, we got to understand other efforts that were taken to sequester information about the environment on a larger scale: they showed us colored maps that charted out acidity, temperature, and other useful metrics for the health of the areas they focused on.

As a whole, I was able to better understand the vital role that science and research can play in impacting people, raising voice to issues, and ultimately solving the problems.”

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“The biggest takeaway for me was that plastic is so deeply embedded in our society that it will be extremely difficult to transition away from it. Microplastics exist in the air, our water, and food systems and it is important for us to combine individual and collective efforts to make a change. It was also very interesting to learn more about the spread of algae and how it is caused and contributes to climate change.”

There were a lot of discussions and questions that got me thinking about the issue from many different angles which has stuck with me.”

“After my experience at the Lamont lab, I got a deeper look into how microplastics (and even nanoplastics) exist everywhere and are not only very harmful to the environment but can be detrimental to human health as well. The procedures we followed helped me understand the step-by-step process for collecting data and analyzing microplastics in different foods/items such as shrimp and clothing fabrics. Moreover, I learned about what it is like working in a lab, the different processes used in research and the trials and errors that are along the way to getting results.”

I would say that I learned how prevalent microplastics are in our lives. For example, I never thought about the relation between washing clothes and increasing microplastics in the ocean, but the Lamont Lab helped me to understand that connection.

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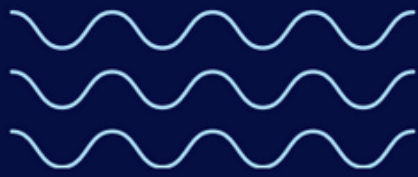
Because the lab visit can accommodate a limited number of students, more cohorts of students will be invited to participate in the summer onwards.

In parallel, a virtual summer program, open to all middle and high schools around the world, are invited to join the ongoing conversation on microplastics issues in water systems.

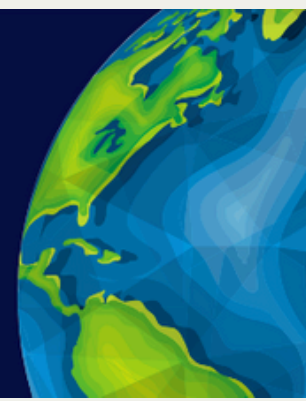
More about the program can be found here:

- <https://edsd.csd.columbia.edu/events/2024-summer-eco-ambassadors-solutions-lab>
- <https://sdgstoday.org/eco-ambassadors-program>

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This student experience is a part of the project, **Community Science to Address Microplastic Pollution in Environmental Underserved Communities in New Jersey and New York.**

The project builds upon Columbia University, Center for Sustainable Development's Eco Ambassador Program and Eco Ambassadors Solutions Lab with SDGs Today, that equips youth participants with scientific knowledge and skills to promote circular economy, via development of solutions for mitigating plastic use and establishment of sustainable solutions for management and stewardship of plastic waste within their communities. T

he project is a collaborative effort with New Jersey Sea Grant Consortium (NJSGC) and New York Sea Grant (NYSG), to not only develop timely and effective marine debris curricula but to also expand its environmental literacy outreach to school districts in various communities in New Jersey and New York urban watersheds.

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