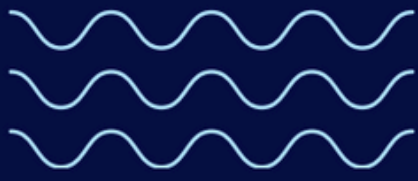
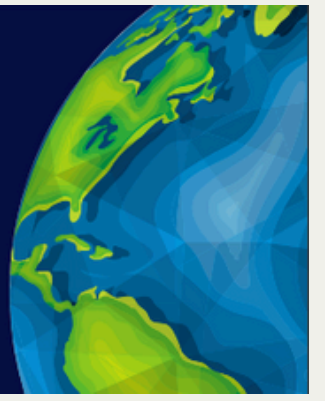


2024 Eco Ambassadors Solutions Lab



Oceans, rivers & water bodies in  
our backyard



## BLOG

### By Crow Idnani

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As I peek through the camera lens, I am struck by the amount of white I see. Between the bright fluorescent lights, linoleum floors, squeaky clean lab equipment, and crowd of students in lab coats clustered around a table, it's hard not to get overwhelmed. The students make up a diverse group, coming from high schools across the New York and New Jersey area. The only two things they have in common is that their interest in studying microplastic pollution led them to the Eco Ambassador program, and that they have shown up to Columbia University's Lamont-Doherty Earth Observatory with a bag of shrimp and an extra shirt.



Dr. Joaquim Goes, the research mentor for this program, explains to the students the dangers of microplastics and their increasingly common presence in the world around us, from detergents to cosmetics. Over the next two days, the Eco Ambassadors will extract and isolate samples from the seafood and clothing they brought to test for the presence of harmful microplastics. On that note, Dr. Goes steps towards the dissection tray, rubs his hands together, and says, "Let's see the goodies you have brought to me today."



One by one volunteers step forward and present Dr. Goes with their frozen shrimp like a bizarre offering. He guides their hand as they carefully trace the dissection scissors down the length of the shrimp, and points out the connective tissues that need to be cut in order for the organs to be pulled free. “You have to have some style if you’re going to be a doctor,” Goes jokes. Though apprehensive at first, the students quickly gain confidence in their abilities. Their seemingly experienced demeanor is betrayed only by the small sigh of relief they all let out once they finish transferring the organs to a test tube for analysis.

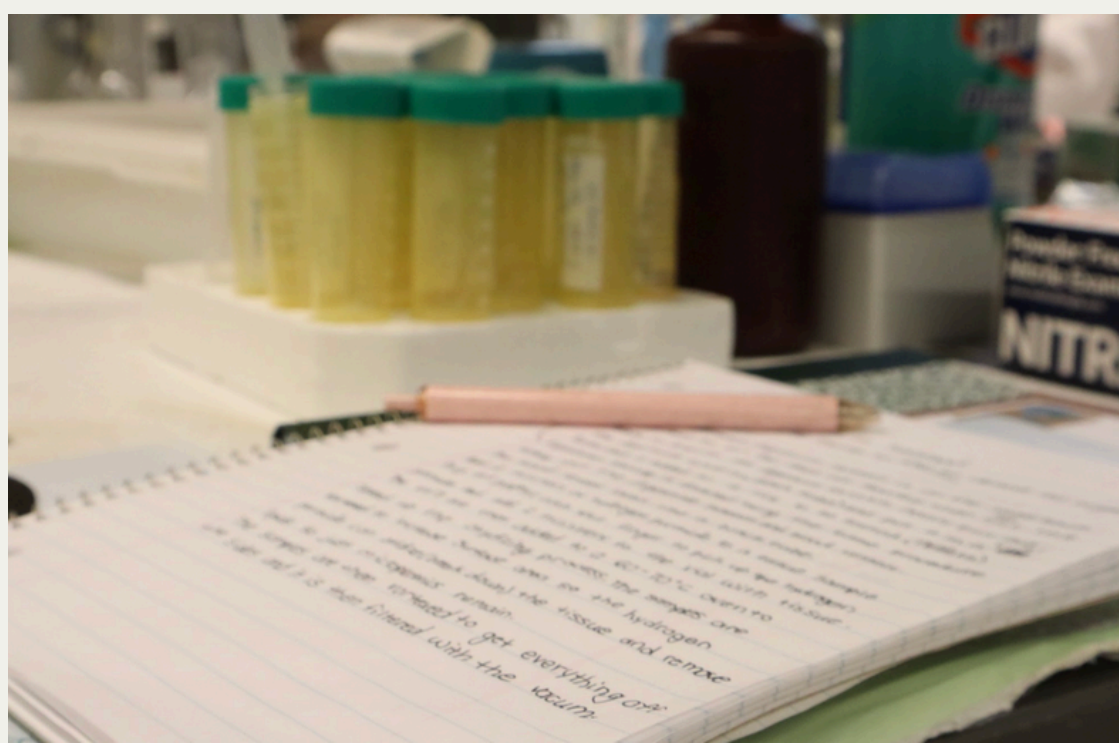


“I’ve never done something like this in school,” says a student with a laugh as he steps away from the dissection table. For most of these students, it is their first time receiving hands-on experience with microplastics in a lab, despite almost all of them having studied the topic before. This practical experience provides skills and knowledge that supplement what they have learned in the classroom in order to help prepare them to better their communities as they continue into the field.





Dr. Goes' two lab assistants remove the Eco Ambassadors' extra clothing from a small portable washing machine and carefully pour out half a liter of the water. The students know this water contains particles shaken loose from the clothing, though they don't yet know how to take this beaker and turn it into a usable sample. They cluster into small groups to talk through the questions posed by the lab assistants; as I circle through the lab I overhear bits and pieces of energetic conversation as the students talk each other through their thoughts. This momentum continues throughout their time in the lab, by the end of the procedure a number of students reflect that getting to practice working through problems with a team outside of a classroom environment was just as valuable a lesson as the lab procedure itself: with one saying "the ideas that we combined together made me really appreciate peer work" and another saying "I learned that it is better to work with a team in the lab to bounce off ideas with."

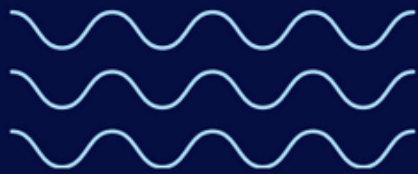


Having collected, stained, and prepared their samples, the students are ready to see the results of their work. They excitedly gather around while Dr. Goes focuses the UV microscope on the sample taken from the students' clothes. With an "Aha!" he steps back and reveals the display screen, showing fibers shed by the clothes. Dotted the fibers are the small white specks of plastic the students have been testing for. Even from where I stand in the back the reaction from the group is palpable. The students came into the lab knowing about the prevalence of microplastics, but being able to actually see the particles on their own clothes drove home the fact that microplastics really are everywhere.

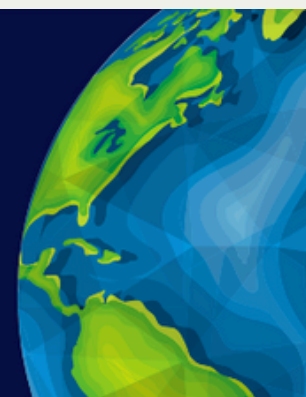


Thankfully, the students' experience didn't end on that note. For all they learned about the prevalence and dangers of microplastics, they also learned about the different solutions being developed to tackle this problem. Even as the students removed their lab coats and began dispersing at the end of the day, I could hear their excited chatter about what they could do next.

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This program to promote environmental literacy and scientific knowledge in underserved communities would not have been possible without the collaboration of Columbia University's Eco Ambassador Program, SDGs Today, New York Sea Grant, and New Jersey Sea Grant.

**“Community Science to Address Microplastic Pollution in Environmental Underserved Communities in New Jersey and New York.”**

The project builds upon the Columbia University [Center for Sustainable Development's Eco Ambassador Program](#) and [Eco Ambassadors Solutions Lab](#) with SDGs Today, which equips youth participants with scientific knowledge and skills to promote the [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.

The project is also a collaborative effort with [New Jersey Sea Grant Consortium](#) and [New York Sea Grant](#) to not only develop timely and effective marine debris curricula but to also expand environmental literacy outreach to school districts in various communities in New Jersey and New York urban watersheds. The project is supported by NOAA & Sea Grant's Marine Debris Community Action Coalitions Competition.

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