



CASE STUDY

All Aboard the Sloop for Microplastics Pollution Prevention!

Hudson River Sloop Clearwater, Inc. is a nonprofit whose mission is to preserve and protect the Hudson River. Founded by Pete Seeger, Clearwater has been inspiring, educating, and activating millions of people for over 40 years at the forefront of the environmental movement as champion of the Hudson river, working to pass landmark legislation like the Clean Water Act, providing innovative and award-winning educational programs, environmental advocacy, and musical celebrations. In order to bring people to the river, in 1966, Seeger announced plans to “build a boat to save the river” choosing a replica of the sloops that once sailed the Hudson.

Challenge

Microplastics are a new type of pollution including fragments, fibers, film, and foam. Despite a federal ban on microbeads, microplastic fibers end up in our water resources from things like fleece clothing where they are shed in the wash cycle. Microplastics break down into small particles from trash such as plastic bags and bottles. All these fibers pass through wastewater treatment systems. Microbeads comprise only 3 percent of microplastics; 97 percent comes from the previously mentioned fragments, fibers, film, and foam.

Once microplastics are discharged into rivers and streams, they are unrecoverable. According to a report by the New York State Attorney General, microplastics persist for decades, acting as sponges for toxic chemical pollutants like PCBs, pesticides, oil, and other chemicals found in river sediments. These are then mistaken for food by aquatic organisms resulting in a pathway for pollutants to enter and contaminate the food chain. When ingested by aquatic animals, they can give them the sensation of feeling full leading to starvation and potentially bioaccumulating. Scientists from the State University of New York at Fredonia and the 5 Gyres Institute discovered some of the highest concentrations of microplastics found in the environment in the open waters of the Great Lakes.

Studies demonstrate that a higher level of environmental knowledge correlates significantly with a higher degree of pro-environment behavior. Thus Clearwater works to inspire, educate, and activate children and adults to promote pro-environment behavior by fostering attachment to the Hudson River. Students participating in place-based education often show more enthusiasm for learning because it is relevant to their daily life. Place-based education contributes to pro-environmental behavior by fostering a sense of attachment.

Solution

Clearwater’s Microplastics Pollution Prevention program will develop environmental stewards in post-industrial cities and towns that lie within the Hudson River watershed. Using teacher trainings and school programs, including sails aboard the Sloop, teachers will collect samples using a special net called a “manta trawl,” allowing them to view the



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SOLUTION

- Clearwater’s Microplastics Pollution Prevention program develops environmental stewards within the Hudson River watershed. Using teacher trainings and school programs, including sails aboard the Sloop, teachers collect samples using a special net called a “manta trawl,” allowing them to view the pollution firsthand
- The school programs develop students’ understanding of microplastics pollution and focus on the actions individuals can take to reduce pollution

RESULTS

- Six shoreline programs were delivered reaching 410 students and 19 sailing classroom programs reaching 692 students. These included Sailing Classroom Programs, Tideline Programs, Classroom Programs, Public Sails, and Educator Sails
- In addition, four teacher trainings were held reaching a total of 75 educators and seven in-class workshops were held reaching 234 students

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pollution firsthand. The school programs develop students' understanding of microplastics pollution and focus on the actions individuals, households, organizations, businesses, and local officials can take to reduce pollution; therefore making them stewards of the Hudson River and its tributaries. This includes in-class workshops with learning stations regarding microplastics debris exploring water chemistry, watershed dynamics, wastewater treatment, and environmental issues facing river communities. The sails and shoreline programs cover the same material while on the Hudson River.

Results

As part of Clearwater's Microplastic Pollution Prevention Program, four teacher trainings were held reaching a total of 75 educators and seven in-class workshops were held reaching 234 students. In addition, six shoreline programs were delivered reaching 410 students and 19 sailing classroom programs reaching 692 students. These included curriculum development and then presentation of the curriculum during Clearwater Sailing Classroom Programs, Tideline Programs, Classroom Programs, Public Sails, and Educator Sails. They also shared the curriculum with additional educators who wanted to provide microplastics education for their own students. In addition, they used their social media platforms to reach a wider digital audience. The curriculum developed will continue to be updated and used for continuing education on plastic pollution in the Hudson River.



Clearwater also conducted pre- and post-test result surveys on over 100 middle and elementary school students showing a clear impact of the microplastics program. The percentage of students who could identify plastics and microplastics as a major source of pollution increased from 31 percent to 80 (middle) and 14 percent to 64 (elementary.)

As a result of the project, Clearwater has facilitated relationships with Trash Free Waters Initiative, Marist College, the Estuarine Research Reserve, and the New York State Department of Environmental Conservation as well as various less formal relationships.

Online Media:

- [Website](#)
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TESTIMONIAL

"We are thrilled that the Sailing Classroom program was so popular for the microplastics curriculum because the sloop is a great platform for getting people to really understand the issue of microplastics pollution!"

- Majja Niemisto, Education Director
Hudson River Sloop Clearwater

NYSP2I PARTNERS



New York Manufacturing Extension Partnership

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