

COMMUNITY GRANTS PROGRAM



CASE STUDY

Clarkson University Empowers Local Students to Teach Watershed Pollution Prevention to Community

Clarkson University, located in Potsdam, New York, is a nationally recognized research university which offers more than 50 rigorous programs of study in engineering, science, business, health professions, arts, and education.

Beacon Institute for Rivers and Estuaries of Clarkson University, headquartered in Beacon, New York, is collaborating with others to advance science and promote estuary stewardship by using technology to optimize accessibility to estuary education. A new Institute initiative is engaging Clarkson University faculty research expertise in projects to answer science and technology needs for Hudson River Estuary education and stewardship.

Challenge

Fishkill Creek is a significant, yet understudied, tributary of the Hudson River. Clarkson University worked with a local high school to personalize the impacts of pollution for the community surrounding the creek and to facilitate a collaborative program to empower public school students to address local pollution prevention needs. The program aims first, to engage students so that they want to inform their community about the health of their local tributary. The goal is then to empower the students to prevent pollution in their local tributary by creating concern about water quality, creating awareness about pollution prevention, creating stewards of the tributary, and creating a model for collaborative tributary assessment in the Hudson watershed as a basis for future school-based projects.

Solution

Students in John Jay High School's AP Environmental Science class and their teacher worked with staff from Beacon Institute and Riverkeeper, under the leadership of Clarkson University faculty. They built upon a pollution prevention curriculum previously created by New York Hall of Science and adapted by Clarkson University faculty, for students and partners to focus on aquatic health factors in Fishkill Creek including course work, collaborative planning, analysis, reporting, media creation, and community information. Students and other participants received surveys and evaluations at key points in the project to gauge project impact and efficiency.

The WETSTEM project encourages students to take ownership of their local and regional water quality, and to take community-oriented leadership roles in the assessment and communication aspect of pollution prevention strategies. The project bridges gaps between school/community and concepts/real-world issues therefore dismantling the notion that someone else will fix it.

Results

The Clarkson-Beacon WETSTEM C3 Curriculum for New York State Pollution Prevention Institute (NYS P2I) provides guidance to project groups in accomplishing objectives and conducting student assessments focused on watershed education and STEM enrichment through water quality study and

CHALLENGE

- To increase awareness of plastic pollution and tributary water quality for a high school and local community

SOLUTION

- Personalize the impacts of pollution for the community surrounding Fishkill Creek and to facilitate a collaborative program to empower public school students to address local pollution prevention needs
- Focus on aquatic health factors in Fishkill Creek including course work, collaborative planning, analysis, reporting, media creation, and community information

RESULTS

- Clarkson-Beacon WETSTEM C3 Curriculum provides guidance to project groups in accomplishing objectives and conducting student assessments focused on watershed education and STEM enrichment through water quality study and pollution prevention analysis of a local tributary/system
- Students conducted fieldwork collecting water samples for microplastics analysis and pH testing and completed a stream assessment report. They made videos of the project and held three public meetings

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pollution prevention analysis of a local tributary/stream. It is designed to be easily adaptable by schools and environmentally-focused groups beyond the original project area and partnership. It is based on the C3 concepts of, "Collect, Construct, Change" as originated by NY Hall of Science.

As part of the application of the WETSTEM curriculum, 24 students conducted fieldwork by collecting water samples for microplastics analysis and pH testing and then completed a stream assessment report. Afterwards, another class of 18 students made a project summary video with the help of Asher Pacht of the Beacon Institute, two (2) educational videos viewed 559 times, and 60 microplastics pollution poster copies to help disseminate the results. With these materials they held 3 public meetings attended by 146 people and made 15 social media posts with a total of 2,367 views.

Two surveys were created to evaluate the effectiveness of the project and communications campaign; one for those who participated in the program and one for the audience. Of the participants (13 surveyed) and audience members (40 surveyed - consisting of members of community groups and the general student body at John Jay High School) 100 percent agreed that they had a better understanding of plastic pollution as a result of the presentation.

[Watershed Education through STEM \(WET STEM\) Project Summary Video](#)

[Plastic Forever](#)

Online Media:

- [Website](#)
- [Facebook](#)
- [Twitter](#)
- [Instagram](#)



TESTIMONIAL

"I think activities like this will help teach kids, especially when they are doing hands-on activities which help to get the mind going. I believe the work we did here was important, because it can bring awareness to people living in the Hudson Valley about the quality of the water they live near."

- Andrea Arellano
Junior, John Jay High School,
Hopewell Junction, NY

"We saw dozens of students engage watershed pollution through field science and media projects over this year. Thanks to NYSP21's generous support, we reached hundreds of people in our community with our data and student-driven P2 messaging on microplastics. The best part is we will continue this work with new students and citizen scientists for years to come."

- Asher Pacht,
Clarkson University

NYSP21 PARTNERS



New York Manufacturing Extension Partnership

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