

NEW YORK HARBOR FOUNDATION

Job Title: Billion Oyster Project Engineer

Deadline to Apply: 1/15/2016

Job Description: BOP Engineer

Through funding from the National Science Foundation, New York Harbor Foundation is seeking to hire an Engineer with a background in computer science, physical computing, environmental engineering, and a firm grasp of project management to support development of the Billion Oyster Project's environmental STEM curriculum and Ocean Engineering (OE) Program at New York Harbor School. The position is focused around two main areas of responsibility.

1) **Help create the Billion Oyster Project's underwater electronics kit** by developing the "Harbor Sonde" water quality sensor kit and software; by leading teacher trainings in sensor engineering, computer programming, and deployment; and by supporting middle school students as they implement the Harbor Sonde.

2) **Support New York Harbor School's Ocean Engineering (OE) program** by working with instructor Rick Lee to help manage the program, co-teach, and support students career technical education.

About New York Harbor Foundation:

New York Harbor Foundation is a regional environmental education 501(c)(3) nonprofit that seeks to improve the access to, awareness and education about, and condition of New York Harbor. We lead the Billion Oyster Project, a large-scale marine restoration effort to restore one billion live oysters to New York Harbor by 2035. Our lead educational partner in New York City is the New York Harbor School, a public high school located on Governors Island in New York Harbor.

About Billion Oyster Project:

BOP IS AN ECOSYSTEM RESTORATION AND EDUCATION INITIATIVE aimed at restoring one billion live oysters to New York Harbor and engaging hundreds of thousands of school children through restoration based STEM education programs. Students at New York Harbor School have been growing and restoring oysters in New York Harbor for the last six years. They have learned to SCUBA dive safely, raise oyster larvae, operate and maintain vessels, build and operate commercial-scaled oyster nurseries, design underwater monitoring equipment and conduct long-term authentic research projects all in the murky, contaminated, fast moving waters of one of the busiest ports in the country. Together and with the help of many partners these students have restored over eleven million oysters. Thirty-six public schools have partnered with the project to provide authentic, place-based science and math lessons through the lens of oyster restoration. Each year, thousands of students participate in these learning opportunities.

About BOP-CCERS:

The BOP-CCERS Partnership is a three-year education research project funded by the National Science Foundation and led by Pace University and New York Harbor Foundation. The goal of the project is to **enhance STEM education in public schools by engaging students and teachers in long term restoration ecology and environmental monitoring projects in collaboration with peers, citizen scientists, STEM professionals, and community groups.** The local restoration ecology project for New York City is New York Harbor Foundation's Billion Oyster Project. The partnership is creating a place-based environmental STEM curriculum and community enterprise, as well as a replicable model of "restoration based education" for other settings and species. The model is based on the notion that school curriculum and student

experience are made more meaningful and effective when linked to a local environmental restoration project of significance to the community.

About New York Harbor School:

The Urban Assembly New York Harbor School, also called the Harbor School, is a public high school located on Governors Island. This school is unique in New York City, which has 538 miles (866 km) of waterfront, in that it attempts to relate every aspect of its curriculum to the water. The school is part of the Urban Assembly network of 21 college-prep schools in New York City. Harbor School is classified as a Career and Technical Education (CTE) school and has six certificated CTE programs in marine science and technology. These are: Aquaculture, Professional Diving, Marine Biology Research, Vessel Operations, OE, and Marine Systems Technology. All students are required to choose and complete one of these six three-year course of study in order to graduate.

Position Overview

The BOP engineer will be the fourth full-time BOP Professional to join the staff of the New York Harbor Foundation. BOP Pros work directly with Harbor School CTE programs to facilitate student involvement in the work of restoring oysters to New York Harbor. The six Career and Technical Educational programs at Harbor School represent the six fields required for ecosystem restoration in New York Harbor. It is however challenging to engage students in these programs in the actual work given the demands placed on students and teachers. BOP Pros, facilitate this involvement by supporting both the teachers in these programs and the work of BOP directly. In this way, BOP Pros are intimately involved in lesson planning and delivery in Harbor School CTE classes and function in many ways as a high school teacher. BOP Pros also carry the responsibility of advancing the habitat restoration and educational goals of BOP outside the classroom. The BOP Engineer will follow this model. In addition to supporting the OE instructor at Harbor School, he/she will work to develop sensor units, train other teachers, design 3-dimensional reef infrastructure and serve as a bridge between Harbor School and middle school teachers in the BOP-CCERS fellowship.

The position includes the following duties:

Harbor Sonde

- Development, prototyping and producing a “Harbor Sonde” using low cost sensors, microprocessors and components in collaboration with the Harbor School OE Program for distribution to BOP-CCERS teachers.
- Work with BOP Web developers to integrate Harbor Sonde data into the BOP Citizen Science dashboard
- Work with the BOP curriculum team to lead professional development workshops to train teachers in water quality sensing, Arduino programming and related technologies

Harbor School OE Program

- Work directly with the Harbor School OE teacher and students to develop, plan and implement the high school CTE program in Ocean Engineering
- Facilitate partnerships between OE students and participating middle schools
- Assist in the ordering of supplies, set up of the classroom and labs and the organization of the OE shop
- Identify and secure partnerships with industry professionals and postsecondary institutions

Required Qualifications:

- Professional knowledge of electrical engineering and ability to teach concepts and practice to students and teachers
- Professional knowledge of Arduino IDE/C++ and ability to teach concepts and practice
- Experience in design, development, deployment, and testing of environmental sensors or related professional experience
- Comfort/dexterity working with teachers and students in classroom, lab, and field settings

Desired Qualifications:

- Proficiency in Solidworks and other 3D modeling software

- Proficiency in AutoCad
- Proficiency in ArcGIS software
- Proficiency in web (HTML and Java) development and native app development

Personal Attributes

New York Harbor Foundation and Billion Oyster Project are fueled by the passion and commitment of the team. Enthusiasm for the work of engaging school children in the restoration of their natural environment is an expectation for the position. Candidates should be comfortable working on a team with various stakeholders and delivering on multi-step complex projects.

Compensation and Benefits:

Compensation is commensurate with experience. Position will be a salaried employee of New York Harbor Foundation. Benefits include health care, paid vacation time, and an extraordinary work setting on Governors Island and throughout New York Harbor.

Contact:

Interested candidates should send a brief cover letter and resume/CV including three professional references to Montana Jernigan at hire@nyharbor.org.