

**Whidbey Island: Gateway To Paradise**

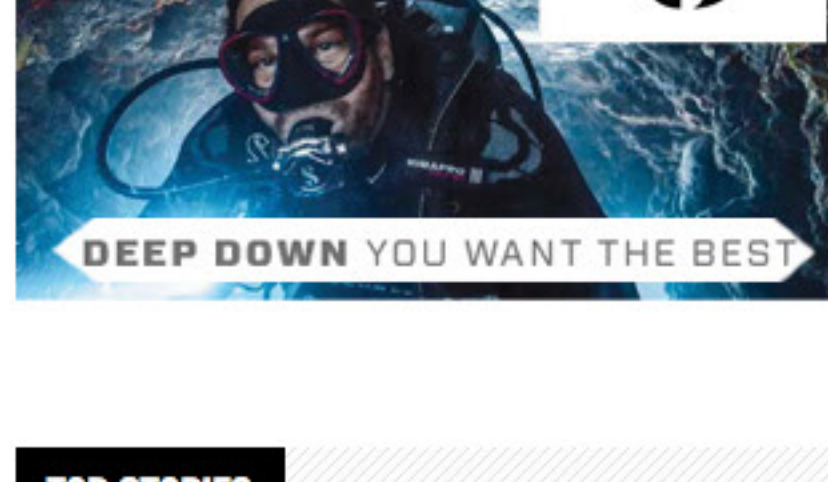
The Pacific Northwest, and particularly Whidbey Island, is extremely suited to be a location in a Novel. — Elizabeth George — Author and Novelist

Whidbey Island, the Way begins and ends with the Pacific Northwest Coast. To the north, the rugged beauty of Sequoia Park and to the south, the gentle beauty of the island.

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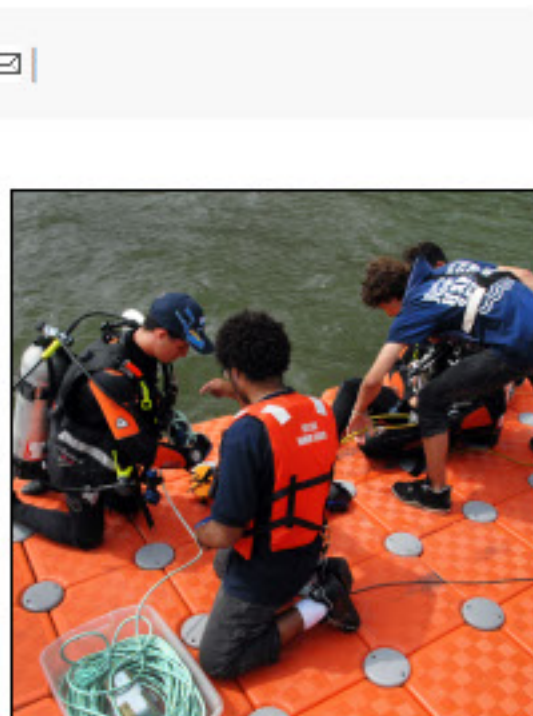
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**The Billion Oyster Project: Rebuilding An Ecosystem With The New York Harbor School**

03 Sep 2014 02:57 | Written by Eco-Photo Explorers | Hits: 18 | [Share](#) | [Print](#)

The dive site, a small inshore stretch of water off Governor's Island in New York Harbor, was not typical. Across the river were the container ship loading docks of Brooklyn, and in the distance was the majestic spire of the Freedom Tower. This bustling waterway is known as the "Buttermilk Channel" and is choked with commercial vessels, ferry boats, Coast Guard ships and other craft.



Article and photos by *Eco-Photo Explorers* Michael Salvarezza and Christopher P. Weaver

"Mind the wake!" was the shout from one of the students, which was again repeated, again by others on deck as a particularly large set of boat driven waves began to rock the dive boat and the attached platform.

While the dive site was unique, so was the dive operation. We were here to document the students of New York City's Harbor School as they prepared the seabed for an oyster seeding effort known as the "Billion Oyster Project".

"Diver descending!" shouted one of the dive tenders, a student enrolled in the Harbor School's Professional Diver program.

"Diver on the bottom!" was the next call as the diver in the water reported his status to the surface via an underwater communications system.

"Diver on the move!" yelled the surface support student as soon as the diver reported that he was moving to a different location on the site.

The Billion Oyster Project (BOP) is an effort to reintroduce one billion native oysters to the waters of New York Harbor over the next two decades and, in the process, educate thousands of young people in New York City about the local marine environment. The project is a center of study at the New York Harbor School, a public New York City high school located on Governor's Island close to lower Manhattan. Initiated in 2010 as a pilot program, the BOP now has partnerships with such well-known organizations as the Clinton Global Initiative, Hudson River Foundation, U.S. Army Corps of Engineers, U.S. Department of Agriculture, and many others.

On this day, students were installing metal structures in the water to hold the young oysters in place in the swift currents of New York Harbor. These triangular, prism shaped units are welded together using rebar and are stuffed with mesh bags filled with oyster cultch. Cultch is used to provide a hard surface for young oysters to attach to. The mesh bags being placed into this structure by the Harbor School students contain shells that already have juvenile oysters growing on them. This stage of the oyster's life is sometimes referred to as spat-on-shell. The plan was to use underwater lift-bags to assist in moving and assembling the structures in the intertidal zones in an effort to create an interlocking linear framework parallel to the shoreline.

Student divers were also retrieving pouches of previously introduced oysters so students on the surface could measure their growth rates.

Eastern Oysters (*Crassostrea virginica*) are considered a keystone species in the waters around New York City. Oyster reefs once covered more than 220,000 acres of estuary and hundreds of miles of shoreline. Historically oysters have played a critical role in the marine ecosystem by enabling continuous water filtration and wave attenuation, and the reefs they built provided habitat for many other marine species. With the arrival of European settlers to the area, oysters became over-harvested and were further decimated by pollution and the urbanization of the local environment. With the levels of pollution now decreasing, the BOP hopes to re-introduce oysters to these waters, with the anticipation of significant and measurable benefits to the local ecosystem.

Oysters are ecosystem engineers: they build reefs in much the same way that corals do. The process works over time as new oysters grow on top of old shells and in this way the reefs are born. These environments provide a home for valuable other native species, such as the shortnose sturgeon and the Atlantic sturgeon, both of which were once common in these waters. Oysters also filter the water, which enables greater light penetration through the water column. A single oyster can filter a gallon of water an hour. This can foster the growth of marine plant and animal life dependent upon sunlight. And with growing concerns over the rise in water levels due to climate change, oyster reefs, which can grow at a rate that outpaces the anticipated rise in water levels, can serve as wave attenuators and provide a degree of protection for waterfront development.

The *New York Harbor School* is one of 581 high schools in New York City, but it is arguably one of the most distinctive. In addition to the traditional curriculum common to all schools in the city, the Harbor School offers specialized studies in various marine fields: ocean engineering, marine systems technology, vessel operations, marine biology research, aquaculture, and professional diving. Tenth grade professional diving students learn to scuba dive, and all graduates from the school are well positioned for further education in these fields or entry-level jobs in a wide variety of capacities. It is the only public high school in the United States that offers a scientific diving program recognized by the American Academy of Underwater Sciences.

Students participate in the BOP by jump-starting the natural life cycle of the oysters. This means helping to grow oysters as part of the aquaculture study, studying them in the marine biology research curriculum, reintroducing them to the environment by navigating vessels to the designated areas and through hands-on professional diving education, and by monitoring the oysters using technologies studied in the marine systems technology field.

"How do you engage kids in the local ecosystem?" asks Pete Malinowski, director of the Billion Oyster Project. The New York Harbor School, through its hands-on approach, has supplied one answer to that question.

It has taken the hard work of many dedicated people to get the project off the ground. But after years of preparation, hard work, tireless efforts at fund raising, and the identification of meaningful partners, the first oysters are now being placed into the local waters. In fact, as of mid-2014 the BOP has successfully restored some seven million oysters to local waterways. Indeed, Murray Fisher, founder of the Harbor School, is quick to emphasize. "It takes special people to do this," he explains.

"It's still a science project. We are starting from zero here," admits Malinowski. "We know the oyster larvae can survive. But will they be able to thrive and build the reefs we know used to exist here?"

Everyone involved understands it is not possible to recreate the environment of 400 years ago in these waters. The entire New York area watershed is now developed, and the resultant silt and freshwater runoff from the surrounding areas permanently alters the environment. But the entire team, buoyed by results from similar work in other locations around the country, remains optimistic.

The Harbor School and the Billion Oyster Project are helping to cultivate more than just marine organisms and revived ecosystems. Together, they are inspiring young people to pursue careers in marine sciences and maritime disciplines. They are growing the next generation of divers who approach scuba diving with a sense of purpose and long-term stewardship. And they are demonstrating the efficacy of a new approach to education in today's world.

After surfacing from the first dive of the day, Professional Diver student Kevin Mejia exclaimed, "That was the best dive EVER!"

When pressed to explain why it was such a great dive, he spoke about the surprisingly good visibility of three to four feet and the manageable current. But it was evident that his excitement really came from the simple joy of being under the water and doing something meaningful for the environment.

The vision for the school is to engage the entire student population across all fields of study at the Harbor School in this effort. The vision for the project is to return some of the local ecosystem to its natural state. The benefits for everyone living in this area are potentially huge.

For more information on this project, visit the following:

New York Harbor School  
[www.newyorkharborschool.org](http://www.newyorkharborschool.org)

Billion Oyster Project  
[www.billionoysterproject.org](http://www.billionoysterproject.org)

American Academy of Underwater Sciences  
[www.aaus.org](http://www.aaus.org)

Oysters! Channel One News  
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