New York's new environmental 'hero'—the oyster

September 2 2012, by Verena Dobnik

In this Wednesday, Aug. 22, 2012 photo, an airplane approaches LaGuardia Airport for landing as Ray Grizzle, left, Kerstin Kalchmayr, second from left, Allison Fitzgerald, second from right, and Loren Coen collect data at an oyster bed at Soundview Park in the Bronx borough of New York. (AP Photo/Mary Altaffer)

(AP)—On a summer morning, marine biologist Ray Grizzle reaches into the waters of the Bronx River estuary and pulls up an oyster. The 2-year-old female is "good and healthy."

He grabs another handful and gets more good news. "This is a really dynamic area: Live oysters, reproducing!" the University of New Hampshire scientist says.

Grizzle holds up a glistening mollusk. He is standing waist-deep in the

murky estuary littered with old tires, bottles, shopping carts and rank debris. A gun was once found.

Marine scientists like him, planners and government officials say millions of mollusks planted in waters off New York and other cities could go a long way toward cleaning up America's polluted urban environment. The oyster and other shellfish can slurp up toxins and eliminate decades of dirt.

Landscape architect Kate Orff has a name for the work she does at her Scape firm: Oyster-tecture. Orff is designing a park and a living reef for the mouth of Brooklyn's Gowanus Canal, where oysters could take hold and help filter one of the nation's most polluted waterways.

"My new hero is the oyster, with its biological power," Orff says.

Oyster-tecture is a 21st-century approach to creating new waterfront infrastructures where long-gone shellfish can be brought back.

Construction has begun on a new pier area that is to host Orff's reef. In her Manhattan office, she holds up a tangle of fuzzy black ropes that will be attached to the Brooklyn pier and filled with shellfish, which need to latch onto something to survive—whether a rock, dead shell or synthetic object.

The Oyster Restoration Research Project, a New York-based nonprofit umbrella group, partners with the NY/NJ Baykeeper ecology advocate working at the Bronx site, and the U.S. Army Corps of Engineers that built an oyster reef on Governors Island off Manhattan.

While oysters are cultivated around the world, the United States has some of the best regeneration programs, says Bill Goldsborough, director of fisheries program at Chesapeake Bay Foundation in Annapolis,

Maryland. The bay is a center of natural oyster growth, and regeneration is thriving just outside urban Annapolis and in Baltimore harbor.

In this Wednesday, Aug. 22, 2012 photo, oysters grow on a discarded tire at Soundview Park in the Bronx borough of New York. Marine scientists, planners and government officials say millions of mollusks living in waters off New York and other cities could go a long way toward cleaning up America's polluted urban environment. The lowly oyster and other shellfish can slurp up toxins and eliminate decades of dirt. (AP Photo/Mary Altaffer)

Scientists also are trying to rejuvenate the oyster population in the Hudson River near Yonkers, north of New York, where explorer Henry Hudson spotted oysters in 1609.

"Having oysters improves the whole aquatic habitat, attracting fish and other marine life to the area," says Dennis Suszkowski, the science director of the nonprofit Hudson River Foundation.

The story of the black bivalve in New York is key to the history of America's biggest city.

When the Dutch arrived in Manhattan in the 1600s, the island was

surrounded by mammoth oyster beds that fed the Lenape Indians. They covered hundreds of square miles underwater—so important as a major export that today's Ellis and Liberty islands were called Little Oyster Island and Great Oyster Island in colonial times.

Rich and poor New Yorkers and visitors dined on them in a maritime metropolis filled with vessels and street vendors hawking roasted oysters, long before hot dogs. But they slowly died out by the turn of the 19th century, overwhelmed by industrial waste, sewage, diseases and the dredging of the harbor to make room for shipping and development.

Now, new beds of oysters for New York's broken-down ecosystem are budding in more than a half dozen locations in the area. If the water temperature, currents, chemistry and other conditions are right, the bivalve can break down the pollution and thrive. But while suitable for cleanup work, they should not be eaten and poachers should not harvest polluted oysters and sell them for profit.

In this Wednesday, Aug. 22, 2012 photo, Allison Fitzgerald measures an oyster from a bed at Soundview Park in the Bronx borough of New York. Marine scientists, planners and government officials say millions of mollusks living in waters off New York and other cities could go a long way toward cleaning up America's polluted urban environment. The lowly oyster and other shellfish can slurp up toxins and eliminate decades of dirt. (AP Photo/Mary Altaffer)

Under Gov. Chris Christie, New Jersey banned oyster restoration in 2010 in waters classified as contaminated for shellfish, citing public health.

In New York City, oyster restoration projects were started about seven years ago, with the city Department of Parks initiating the one in the Bronx—a 30-foot (9.14-meter)-long artificial reef made of rubble, old shells and hundreds of mollusks.

"It's so shocking that we're out there in the South Bronx and oysters are thriving—shocking to people who wouldn't put their little toe in the water for fear of how polluted it is," says Marit Larson, a water management expert at the department's Natural Resources Group.

Larson says the aim of what she calls "ecological engineering" is to create hundreds of acres of reefs in the next decades, populated with mollusks that form naturally spawning colonies. Funding for the projects comes from private and government sources. A 1-acre (0.4-hectare) bed with up to 1 million oysters costs at least $50,000 to plant and manage.

Some new plantings in New York Harbor failed because the oysters were swept away by currents and boat wakes. So close attention must be paid to the beds that have succeeded.

"The question is 'how can we use the natural processes of organisms that were once here in abundance,'" she says. If oyster regeneration can be sustained and expanded, "it's the ultimate success story for one of the most urban and heavily used harbors in the world."

Grizzle says the oyster is the perfect aquatic engineer for the job. It pumps water to feed, retains any polluted particles and releases the

rest—purified. Each one filters about 50 gallons (189.26 liters) of water a day.

"There's no human engineering substitute for these living things that clean the water," he says as he wades hundreds of feet back to the South Bronx shore.

Behind him, a plane takes off from LaGuardia Airport, low over Rikers Island jail.

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