The Critters Doing $114 Million in Damage to Brooklyn's Piers

Hu, W. (2019). The critters doing $114 million in damage to Brooklyn's piers.

Marine borers have come roaring back in New York Harbor, threatening almost anything in the water made of wood.

No signs, fences or entreaties can keep these vandals away from the sprawling waterfront park at the foot of the Brooklyn Bridge.

They relentlessly attack the timber pilings that hold up the pristine lawns, basketball and handball courts, soccer and lacrosse fields, and roller skating rink, and threaten the future of an 85-acre park that has become a showcase for New York's waterfront redevelopment.

They are marine borers — so named because they leave behind wood riddled with holes.

Along with oysters and other marine life, these pests have come roaring back to New York Harbor, threatening almost anything in the water made of wood.

They are the beneficiaries of more than four decades of federally mandated efforts to clean up the industrial pollutants and raw sewage that had turned the harbor into a marine wasteland.

These marine borers are wreaking havoc on older wooden piers, wharves and bridges all along the city's 520 miles of waterfront.

"The city is a victim of its own success," said Eric A. Goldstein, a senior attorney for the Natural Resources Defense Council, an environmental advocacy group. "The improved water quality has been a 'welcome back' sign for marine borers."

Marine borers took out a heavily used Brooklyn footbridge over Sheepshead Bay in 2015, requiring the city to close it for several months to repair a hole-ridden foundation. The borers have also weakened timber pilings under the Carroll Street Bridge over the Gowanus Canal in Brooklyn, and under the F.D.R. Drive in Manhattan.

Along the New Jersey waterfront their handiwork led most notably to the partial collapse of a pier at Frank Sinatra Park in Hoboken. "It looked like something took a big bite out of it," recalled Leo Pellegrini, the city's director of health and human services. The pier has since been rebuilt with pest-proof, concrete-and-steel pilings.

The marine borers have also become a nuisance for the Port Authority of New York and New Jersey. Last year, the authority spent $6.2 million to encase 294 timber pilings in concrete — or about $21,000 per piling — under three Brooklyn piers. It is currently assessing the condition of the timber pilings at all its piers and wharves in the region.

The two most common borers are a kind of shipworm called Teredo navalis, which is actually a wormlike clam, and tiny crustaceans known as gribbles. They often work together, with shipworms boring tunnels inside timber pilings and gribbles chewing from the outside, according to scientists and city officials.

Now, Brooklyn Bridge Park is taking a stand to ward off the pests. It is undertaking a four-year, $114 million project to coat 11,000 timber pilings under four of its piers with epoxy as a way to prevent any further damage.

"It's a massive undertaking," said Eric Landau, the president of the Brooklyn Bridge Park Corporation, which operates the park. "What we're ensuring by doing it is that this park is here for generations to come."

Marine borers have plagued port cities around the world for centuries, according to Dan Distel, the director of the Ocean Genome Legacy Center at Northeastern University in Massachusetts.

Shipworms got their name because they were blamed for sinking wooden vessels, and were even reportedly aboard Christopher Columbus's ships to the New World. They have infiltrated timber pilings from the San Francisco wharves to the famed canals in Venice.

But in New York, the marine borers seemed to largely disappear as the city grew and industries expanded in the last century.

By the 1960s, the waters had become overrun with raw sewage and oil and chemicals discharged by factories. "Industries were using the harbor as a dumping ground," Mr. Goldstein said. "You wouldn't want to swim or eat the fish, and only the bravest would take out a kayak."

Indeed, there were stories of boats being taken into the polluted harbor just to clean off any marine borers from other waters.

The polluted waterways in New York and elsewhere helped make the case for tougher federal laws, including the 1972 Clean Water Act, which tightened oversight of industries and required cities to build and upgrade sewage treatment plants.

The waterways are now the cleanest in more than a century, city officials like to say, though there are still sewage spills when heavy rains overload the city's sewer system.

The marine borers have returned, and made themselves right at home.

Hudson River Park has spent hundreds of millions of dollars since 2000 to demolish 14 older piers sitting on deteriorating timber pilings and rebuild them with concrete decks and pilings, according to Madelyn Wils, the president and chief executive officer of The Hudson River Park Trust, which operates the park.

The most recent project is Pier 55, a new park with a performing arts venue that is being built largely with money from the entertainment mogul Barry Diller.

"In the early 2000s, it became evident the marine borers were back in full force — they were actively eating the wood pilings in the park," Ms. Wils said. "In the following decade, as the waters got cleaner, they got busier."

The city's Economic Development Corporation has repaired timber pilings at the Manhattan cruise ship terminal on the Hudson River; the Battery Maritime Building in Lower Manhattan, where ferries depart for Governors Island; and at Pier 36 on the Lower East Side, which has a garage for city sanitation trucks.

The city's Parks Department is also reinforcing or rebuilding pilings under an esplanade along the East River, and at several marinas in Queens and the Bronx.

Brooklyn Bridge Park, which opened in 2010, sits atop four former industrial piers held up by a total of 13,000 timber pilings (a fifth pier is built on landfill). It has already spent about $50 million to reinforce or encase 1,500 of those pilings in concrete.

"We have brought the people to the park and we're trying to keep the marine borers at bay," Mr. Landau said.

But as the piecemeal concrete fixes became increasingly expensive, the park looked to other options. It settled on an approach that coats timber pilings in a thin layer of epoxy before they became too weakened to stand on their own.

Mr. Landau said the epoxy was cheaper, faster and had fewer environmental impacts than concrete. It is also expected to last longer than concrete, which can crack and requires constant maintenance.

The park will pay for the epoxy work from revenue generated by real estate development in the park, including a hotel, condos, offices and retail stores.

In total, the park expects to spend about $300 million on work on the pilings — or about three-quarters of the original $400 million cost to build the park.

The other morning, Mr. Landau and David Lowin, the park's executive vice president, climbed into a power boat to inspect the thicket of pilings just below the park. Pine wood gleamed under the water.

Mr. Lowin recalled that when he started working on the park more than a decade ago, he had to learn all about timber pilings — and the threat from marine borers. Now, of course, he knows more than he ever wanted.

"He is our resident expert," Mr. Landau said.