

Cleaner Harbor Has a Downside: Pests That Plague Park Construction

Cleaner harbor has a downside: Pests that plague park construction. (2011).

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Over the next few years, New York City plans to spend hundreds of millions of dollars on shoreline parks, in possibly the biggest burst of waterfront-park construction in its history. Some of that money will buy things like new lawns, ball fields and even skateboard parks, but most of it will pay for something far more prosaic: concrete pilings.

At the newly reopened East River Park, \$65 million of the total \$83 million spent on the park went to infrastructure work, including replacing 14,000 rotted timber pilings with 715 concrete supports, encased in steel for good measure. And at Brooklyn Bridge Park, officials are now spending \$11 million to encase more than a thousand pilings beneath Pier 5 in concrete. The cost to do all 12,000 pilings at the park in the next few decades — \$200 million.

"The icing on the cake, the part that people enjoy, is actually the least expensive part of a project," said Joshua Laird, the assistant commissioner for planning and parklands for the city's Department of Parks and Recreation.

Behind the higher costs is a paradox: The significantly cleaner harbor, despite recent sewage problems, has created a problem for parks officials by allowing two marine pests — shipworms and gribbles — to flourish. Together, they attack wood pilings; the gribbles, which are tiny crustaceans, chew from the outside, while shipworms, larger mollusks, bore tunnels within.

"We literally have a clean harbor, but it's causing incredible devastation to the physical infrastructure of the waterfront, and it's costly to repair and replace," said Adrian Benepe, commissioner of the city's park's department.

The city has tried to save disintegrating timber pilings in the past, with things like chemical treatments and plastic wrap, but to no avail. Engineers say that reinforced concrete is the best material to withstand the wood-ravaging invertebrates below and support the throngs of parkgoers above. As the public hungers for greater access to the long-elusive waterfront, parks officials first have to shore up a hidden support network across the city's more than 500 miles of coastline.

Pouring concrete underwater is expensive, however. According to city estimates, hundreds of millions of dollars have already been spent in recent years on pier construction, and work to be done in just the next five years is expected to cost an additional \$300 million.

In March, Mayor Michael R. Bloomberg and the City Council speaker, Christine C. Quinn, unveiled a comprehensive blueprint for the city's waterfront. Over the next three years alone, if all goes according to plan, the city will create 50 acres of new waterfront parks and 14 esplanades, as well as reactivate industrial piers.

Already, at Hudson River Park, which stretches for five miles from Battery Place to 59th Street, nearly a dozen new piers with reinforced concrete pilings have been built atop the remnants of old ones.

Along the waterfront there is still evidence of the plastic sheeting the city had wrapped around wooden pilings in the 1990s in an unsuccessful effort to keep out marine borers. (The plastic wrap actually made the problem worse.)

There were also a few attempts at making pilings from recycled plastic, but the results were problematic. The city's first all-plastic pier, built from 1.5 million recycled plastic bottles at Tiffany Street in the Bronx, was heralded as a breakthrough when it opened in 1995. But it caught fire and melted the following year when struck by lightning.

Marine borers have bedeviled port cities and boat captains for centuries. "The gribbles are the marine version of termites," said Ed Enos, superintendent of the aquatic resources division at the Marine Biological Laboratory, a research and education center in Woods Hole, Mass. "And the shipworms have a well-adapted mouth that can scoop out and break down wood fibers."

As pollution fouled the waters around New York City during the 20th century, the problem went away.

On a tour of the city's waterfront last week, Robert K. Steel, deputy mayor for economic development, told how New York, at its most polluted, was jokingly called a "clean harbor" by the shipping industry. "The water was so dirty that as you brought your ship in, all of the organisms on the bottom of the boat would be killed," he said. "So your boat would leave 'clean.' "

Today, with less wood over all in the harbor, the borers seem to be worse than ever. "We've seen explosions of marine borer activity in the remaining timber pilings," said Daniel A. Zarrilli, senior vice president for maritime operations at the city's Economic Development Corporation.

One of the largest new riverfront projects is the East River Waterfront Esplanade, which will eventually run for two miles north from the tip of Lower Manhattan. The first two-block section, from Wall Street to Maiden Lane, opened in July. The Economic Development Corporation has so far spent \$26 million on infrastructure improvements, including a new pier and piling reconstruction.

Mr. Laird, the assistant parks commissioner, said that dozens of piers had collapsed over the decades, the victims of marine borers as well as old age and incessant waves. In 1995, marine organisms were blamed when a 70-foot section of a city-owned wharf plunged into the East River near 15th Street.

Once a pier falls to the river bottom, Mr. Laird said, it is much harder to win regulatory approval to replace it. "The final frontier for park expansion in the city are these old maritime industrial sites," Mr. Laird said. "But it's a fight against time."

That is one reason city officials are eager to begin reconstruction of the Waterside Pier, a former Consolidated Edison site supported by timber pilings on the East River. Just south of the United Nations, the crumbling one-acre pier is scheduled to become a waterfront park.

The Economic Development Corporation recently chose an engineering firm to design the rehabilitation, which is expected to cost \$13 million. The landscaping above will require additional money. "The structure there is so far gone that it will have to be a complete rebuild," Mr. Laird said.

At Brooklyn Bridge Park, workers this summer are stabilizing Pier 5, which is supported by about 3,000 timber pilings. An analysis revealed that about half needed immediate repair. Starting last year, technicians and divers began the laborious process of fitting a steel cage and fiberglass mold around each piling, then pumping in concrete. An independent inspector must approve the work at each step of the way.

The piling work and other marine repairs on Pier 5 will enable the construction of three playing fields, a concession building and picnic areas. A single piling encasement can cost from \$7,000 to \$30,000, depending on a number of factors.

"That's one of the most challenging things to explain: that a great majority of what we're spending money on is for things that aren't really visible," said Jennifer Klein, director of capital operations at Brooklyn Bridge Park. "It's a huge part of what we have to do in order to build on top."

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