Ripple Effect

A string of proposed projects aims to reclaim urban waterways for people.

By Joann Gonchar, FAIA

RENDERING: © FAMILY NEW YORK, COURTESY OF FRIENDS OF + POOL

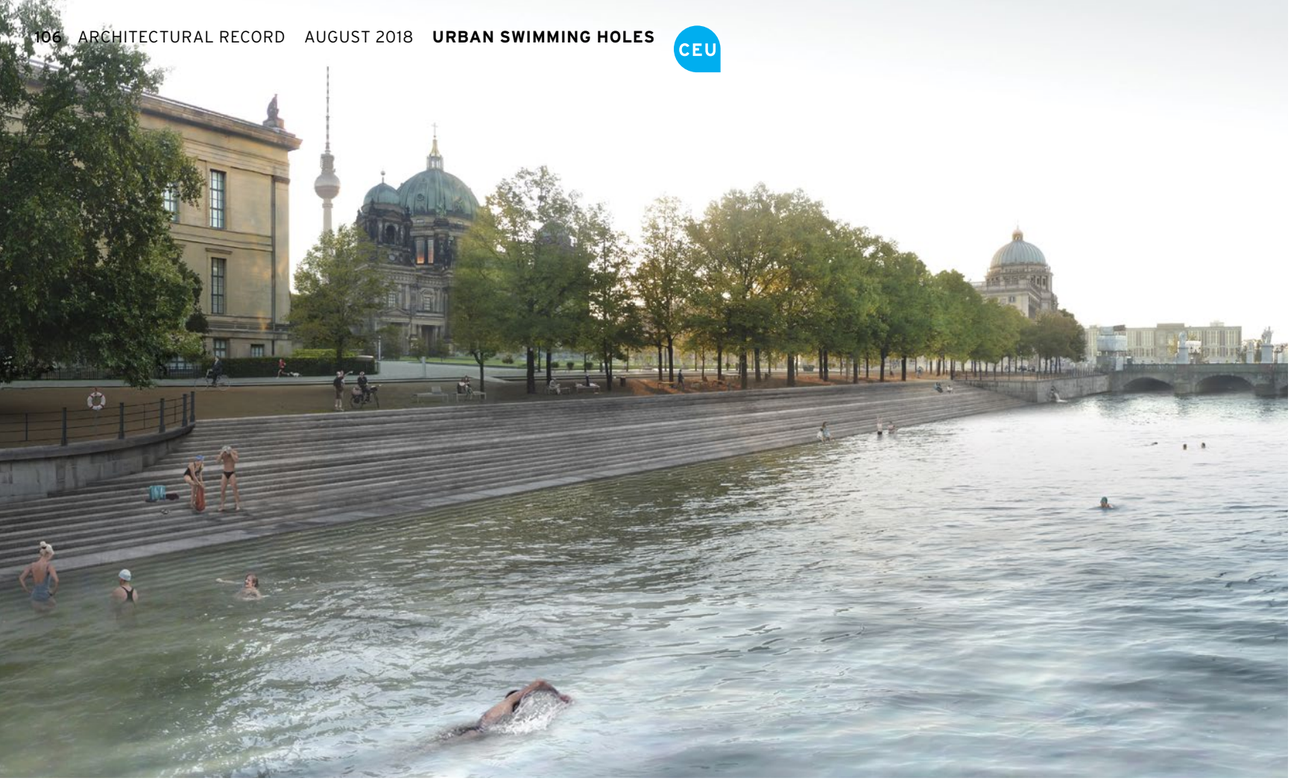
AS ARCHIE LEE COATES tells it, + Pool—a concept launched in the summer of 2010 for a swimming facility that would float in New York's inner harbor and be filled with river water filtered by the pool's own walls—was created almost on a lark. He and Jeff Franklin, his partner in the multidisciplinary design firm PlayLab, along with Dong-Ping Wong and Oana Stanescu, founders of the former architecture firm Family, wanted to make it possible for their fellow New Yorkers to swim in the city's rivers without worrying about the dangers posed by currents, boat traffic, floating debris, or pollution.

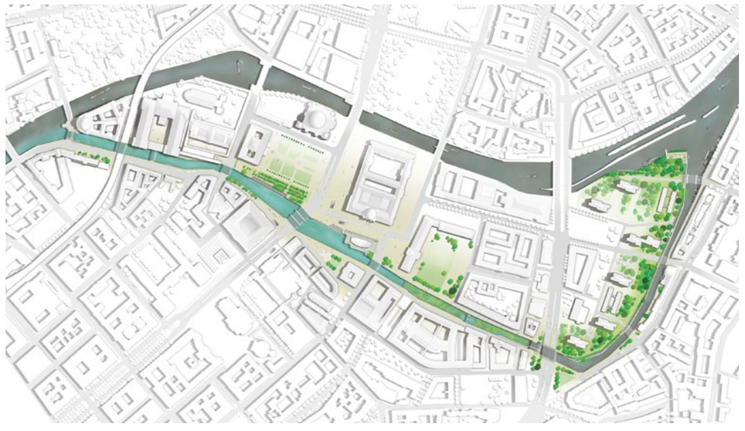
By Coates's own admission, the four friends, then all in their mid- to late 20s, and who had all launched their firms only a year before, were incredibly naive: "We didn't understand anything about water quality, how to build in New York, or how to fundraise," he says. But they had hardly any work—it was the depths of the Great Recession—so they spent a few weeks developing a scheme for a cross-shaped pool 50 meters across in both directions. They made a website (pluspool.org) and a pamphlet that they sent to the parks department and other city agencies. They received little response at first, but the project started getting attention after a friend wrote an article for a business newsletter. A few weeks later, the idea caught the eye of the engineering firm Arup, which offered to help develop the filtering system.

In the intervening years, more than $340,000 dollars has been raised for + Pool in two Kickstarter campaigns, the project has attracted support from corporate sponsors (including Heineken), and it has won grants for the development and testing of its filtration system and for other activities. Friends of + Pool—a nonprofit established in 2015 whose primary mission is to support the development of the facility but which also oversees a number of other initiatives, including a children's learn-to-swim program—has an annual operating budget of $1 million. Significant hurdles remain. The one that looms largest is finding a site, but, according to Coates—who serves as the organization's executive director—the mayor's office has committed to helping identify a spot in the Hudson or East River by the end of the year. Clearly, this seemingly outlandish idea has legs.

New York is hardly the only city considering a swimming facility for waters previously thought unsuitable for such a use. In the U.S. and Europe, there are several active proposals.

JUST ADD WATER The walls of + Pool, a proposal for New York, will be made of fabric membrane that will filter river water. Though shown here near Brooklyn Bridge Park, the location of the pool is not yet determined.





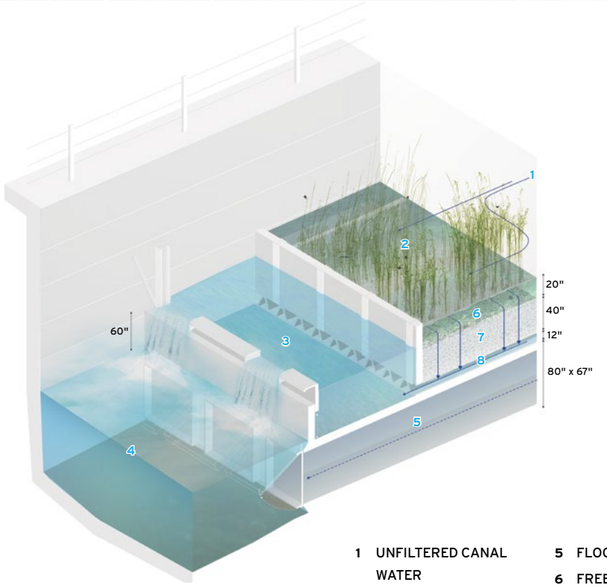
One with considerable momentum is Flussbad for the center of Berlin, first proposed two decades ago by brothers Jan and Tim Elder, cofounders of realities:united, an art-and-architecture studio perhaps best known for its light and media facade on Peter Cook's Kunsthaus Graz in Austria. The Flussbad project would transform the Spree Canal, the disused waterway that slowly flows alongside one edge of Museum Island, where many of the city's important museums are located, into a 2,700-foot-long swimming channel, 50 feet across at its narrowest point.

Although Flussbad involves few built elements—access to the water, a bioremediation zone that would cleanse the water, and potentially changing and showering facilities—Jan Elder says that full realization might not become reality until 2025. It could take that long to sort out questions surrounding land ownership and usage, secure funds for construction and management, and develop a legal framework that would allow safe operation of the facility in the middle of the city. But there has been notable progress in recent years, including two Holcim prizes with a combined cash award of $150,000, financing of a feasibility study with about $130,000 from Berlin's LOTTO, and the granting of nearly $4.7 million from the federal government for further development of the Flussbad concept. Last November, the state parliament voted to establish a committee that would help the project obtain the necessary permits. It is rare, points out Elder, for a grassroots project to receive so much official support.

In London, a scheme for a floating river pool on the Thames also shows promise. Since the project was chosen as one of the winners of a 2013 call-for-ideas competition organized by the Royal Academy of Arts, the Thames Baths Community Interest Company, led by the local architecture practice Studio Octopi (see page 31), raised almost $200,000 in a 2015 Kickstarter campaign; refined its plans for a pontoon that would accommodate two pools, including a 25-meter lap pool, with marine engineers and other consultants; created a business and operations plan; and assessed a number of potential high-profile sites, including one outside the Tate Modern. But now the project team is evaluating opportunities with the owners and developers of a property in East London. Chris Romer-Lee, a Studio Octopi director, says the move away from the center of the city should benefit the project. "We've begun to realize that the baths are a place-making tool, rather than something you plug into an already established site," he says.

Launched only two years ago, an effort to create a river swim park in Boston or Cambridge, Massachusetts, is a relative newcomer among proposals for floating urban baths. But the group behind the plan—the Charles River Conservancy, a nonprofit dedicated to enhancement of the river's parkland—has already completed a feasibility study with the local office of Stantec and has commissioned a second engineering firm, Foth-CLE, to further develop the concept for an enclosed swimming facility that is most likely to be located adjacent to North Point Park in Cambridge, a green space created to replace parkland lost to Boston's Big Dig highway project. The spot has several advantages, according to Vanessa Nason, the conservancy's

LIVING FILTER Flussbad would transform the canal running along Berlin's Museum Island into a swimming channel (opposite, top and bottom). A planted bioremediation zone (above and right) will clean the water.



FILTER DIAGRAM

1 UNFILTERED CANAL WATER
2 FILTER AREA
3 FILTERED WATER
4 SWIMMING AREA
5 FLOOD DISCHARGE
6 FREE-FLOWING WATER
7 GRAVEL
8 DRAINAGE

SITE SPECIFICS The team behind the Thames Baths has explored a number of Central London sites, including one near Westminster Bridge (above), but it is now evaluating an East London location. Meanwhile, a group behind a proposal for Boston's Charles River (top) is focusing on a spot adjacent to a Cambridge park.

project manager, including sufficient water depths, limited boat traffic, and accessibility from subway and commuter rail stops.

Though these four proposals take varying approaches to bringing natural swimming to cities, they are all motivated by a shared view of urban waterways as untapped resources. As Romer-Lee puts it: "The Thames is the city's largest public space, but most Londoners just travel over or around it. They have no engagement with it."

This desire to reconnect people with the water that surrounds them is a logical next step, as cities revamp their riverfronts and shorelines for recreational and residential uses, according to Jane Withers, a UK-based design consultant and writer who curated *Urban Plunge*, an exhibition that explored the relationship between cities and their waterways, first shown at London's Roca Gallery in 2014. "Why should this activity stop at the water's edge?" she asks.

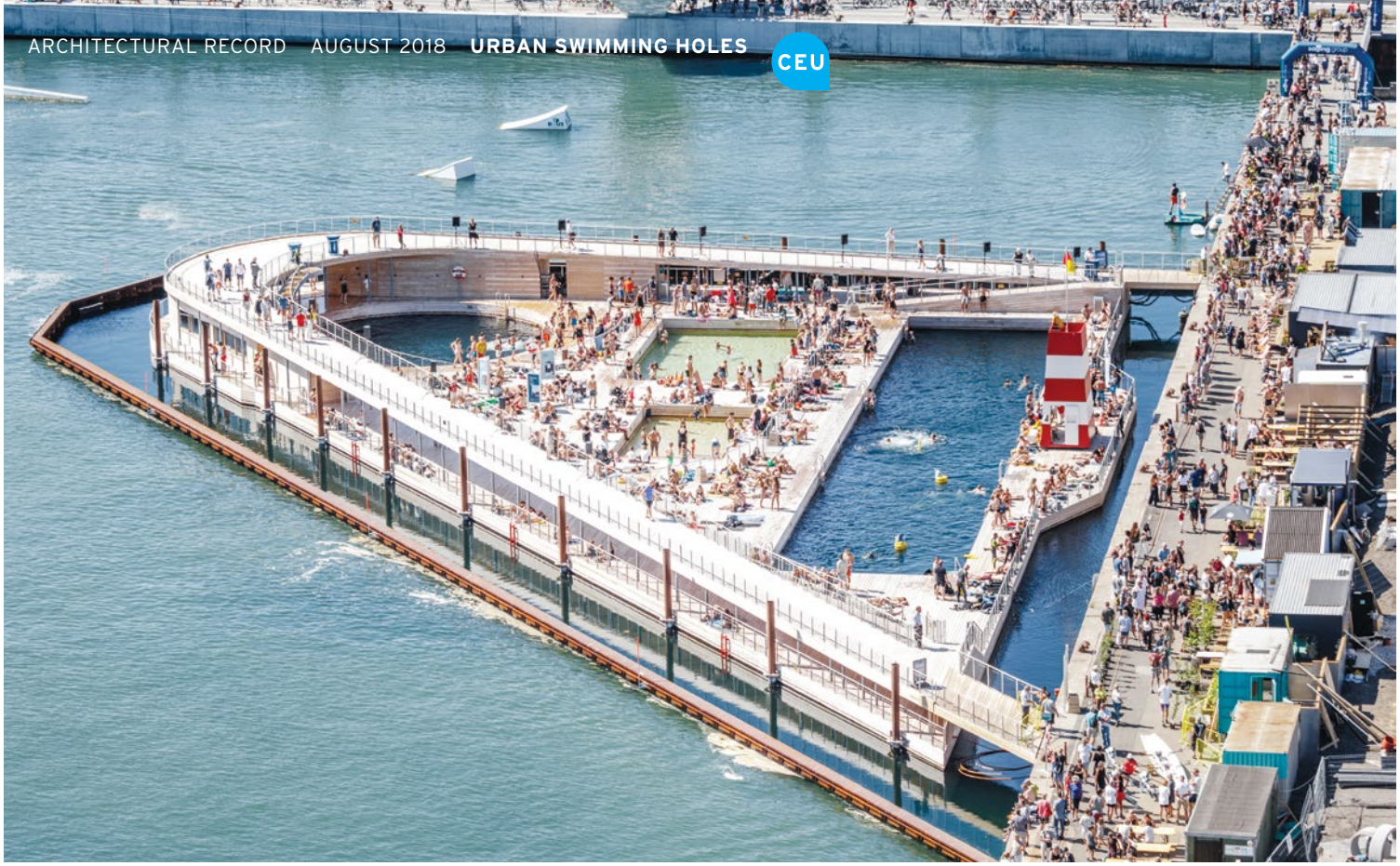
Withers points to the turnaround of Copenhagen Harbor, which for many years was contaminated by wastewater, oil spills, and algae. But thanks to infrastructure improvements, the water is now safe for swimming. The harbor has four popular floating swimming facilities that have helped reclaim the former industrial port as a social and cultural center. Another Danish city, Aarhus, is hoping to replicate this success. Earlier this summer, it opened what is being touted as the world's largest seawater bath, designed by Bjarke Ingels Group (BIG), which also designed the first such Copenhagen Harbor facility, with Julien De Smedt Architects, 15 years ago. Aarhus's new triangular floating complex has a wooden deck that sits on top of prefabricated concrete pontoons. Surrounded by an elevated walkway, it includes a 50-meter-long pool, a children's area, a circular diving pool, and two saunas.

For many European and American cities, the main impediment to water that is as reliably clean as that in the harbors of Copenhagen and Aarhus is outdated infrastructure. Often these places depend on so-called combined sewers, which transport stormwater that runs off roadways, domestic sewage, and sometimes industrial waste, in the same pipe. When such a system works optimally, this unsavory mixture is transported to a wastewater plant, where it is treated and then discharged to a river, stream, or other water body. But when it rains, the system can become overloaded, and the cocktail, including raw sewage, is dumped directly into waterways. This release of untreated water is referred to as a combined sewer overflow, or CSO.

New York officials maintain that harbor water quality is better than it has been in a century, due to tightening regulations and increased infrastructure investments. And in dry conditions, the Hudson and East Rivers are often free enough from contaminants to be considered safe for swimming. But 60 percent of the city is still served by a combined sewer system that discharges about 27 billion gallons of pollutants into waterways each year. And at some of its 460 outfall points, as little as 1/10 of an inch of rain can cause an overflow, according Dan Shapley, director of the water-quality program at Riverkeeper, a nonprofit organization that works to protect the Hudson River and the New York watershed. "Basically, every time it rains, sewage is overflowing somewhere in N-Y-C," he says.

To cope with these conditions, + POOL's filter, developed by Arup, will consist of multiple layers of fabric membrane that will remove successively smaller particles, as well

RENDERINGS: © STANTEC (TOP); STUDIO OCTOPI & PICTURE PLANE (BOTTOM)



as bacteria, without the use of chlorine or other chemicals. Further refinement of the system, which was tested in the Hudson for six months during the spring and summer of 2014 and has a provisional patent, depends on site selection, since water quality varies not only with the amount of precipitation, but also with location, according to Nancy Choi, an Arup senior engineer. The team is also still working to determine an appropriate turnover for the water once it is in the pool to prevent the introduction of pathogens from the swimmers themselves. She is confident, however, that "the water will be measurably cleaner going out than coming in." The pool will filter about 600,000 gallons of water each day.

The Flussbad will take a different approach toward CSOs, which dump sewage into the Spree Canal about 15 to 20 times a year. To create its filtering system, a 1,300-foot-long section of the channel will contain a gravel-and-sand bed planted with reeds and grasses. The water will be microbiologically cleansed as it slowly flows through this zone, driven by gravity, before it is released into the swimming area. Calculations have shown that the scheme works, but a year-long test of a prototype filter has just gotten under way using a barge moored in the canal.

The Thames Baths, like the Flussbad, plans to use bioremediation with gravel beds and reeds, but, as with + Pool, the final configuration is highly dependent on the ultimate site. "It's a chicken-and-egg situation," says Romer-Lee. Meanwhile, the Charles River Conservancy also is considering plants as a means of improving water quality. However, the current scheme calls for a pool with mesh sides, with water flowing through unfiltered. The proposal assumes that the Charles is swimmable, explains Audrey Cropp, a Stantec design visualization specialist and landscape architect who acted as the feasibility report's project manager. And, in fact, the river earned an A- rating from the Environmental Protection Agency last year, which means its water almost always met standards for safe boating and swimming. (As recently as 1995, the Charles earned a grade of D.) But even with these improved conditions, the conservancy acknowledges that, like public beaches, the Charles is unlikely to meet health standards every day of the summer. On days when the water quality is poor, the swim park would be closed.

Naturally, the conservancy and the groups behind the pools in New York, Berlin, and London are also hoping that there will be a day in the not-so-distant future when the water in their cities is clean enough that neither filters nor closures will be necessary. And they hope that their projects will play at least a small part in making this transformation happen. "The idea is to connect the community to an incredible resource," says Cropp. "If they are connected to it, they will take care of it." ■

MAKING A SPLASH Earlier this summer, a new harbor bath opened in Aarhus, Denmark (above). The triangular facility can accommodate up to 650 people and was designed by Bjarke Ingels Group. Ingels was also part of the team that designed the first of Copenhagen's four harbor baths, completed in 2003.

Continuing Education

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Learning Objectives

1 Discuss schemes for introducing public swimming facilities to natural waterways in several cities and describe how each reclaims neglected public space.

2 Describe the water-filtering technologies that each scheme plans to use.

3 Explain how outdated wastewater infrastructure threatens the swimmability of waterways.

4 Define technical terms relevant to a discussion of water quality.

AIA/CES Course #K1808A

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