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Buried streams pose risk to bay

Underground waterways rush pollution to Chesapeake Bay

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Sun reporter

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The stream has been hidden for years, buried under the streets of Southwest Baltimore's poorest neighborhoods, almost forgotten.

Only when it rains does the stream come alive, an underground current that carries with it the litter of storm drains - plastic bags, soda cans and other trash. It emerges near the Carroll Park golf course, disgorging into a rocky bed of the Gwynns Falls that holds a fetid cocktail of sewage and garbage.

Far more dangerous is the pollution that the naked eye can't see - nitrogen, zinc and lead from automobile exhaust, among other sources. The chemicals accumulate on roads and sidewalks and are washed into waterways when it rains.

In a common stream, vegetation would slow that down and microorganisms in the water would feed on the pollutants. But a buried stream - one paved over or filled in with dirt to accommodate development - has no such life forces. It is a direct chute from the city streets to the falls and then to the [Patapsco River](#) and, eventually, the [Chesapeake Bay](#).

"These streams are just ecosystems waiting for water," said Sujay Kaushal, an ecologist with the University of Maryland's Center for Environmental Science. "What's happening to them is like emphysema. If you compromise the smallest capillaries, then the patient can't breathe."

The advertisement features a pink background with a blue banner at the top containing the WaMu logo and name. Below this, a blue banner reads "WaMu Free Checking™". A second blue banner displays "+3.30% APY Online Savings." in white text. Below the banners, the text "Apply online in just 7 minutes." is written in pink. At the bottom, there is an orange "LEARN MORE" button and the phrase "Whoop hoo!™" in white. The text "FDIC Insured" is visible in small white letters at the very bottom of the ad.

Kaushal spends much of his time searching for buried streams in hopes of persuading state and local governments to restore some of them. To help him, he has enlisted Andrew Elmore, a landscape ecologist from the center's lab in Frostburg. Elmore uses advanced mapping techniques to locate the streams, then computer modeling to determine how many have been silted over.

Together, they have found hundreds of buried streams in the Gunpowder and Patapsco watersheds alone, and they believe that more exist in Howard, Anne Arundel, Carroll and Harford counties. Bringing streams back involves removing the concrete or dirt that covers them, remaking the stream bed and planting vegetation to keep the soil in place. So far, just a handful of streams has been restored.

The practice of burying streams began more than a century ago.

Baltimore's builders wanted to direct water away from people's homes - both to prevent flooding and because, in the days before modern sewage and storm drains, being too close to the flow was a health hazard. Because Baltimore is part of the Chesapeake Bay's drainage area, thousands of tiny guts and gullies fill with water during heavy rain. But when it's dry, they don't look like streams. So, one by one, developers filled them in.

"No one was breaking the law," said Darin Crew, restoration manager for the Herring Run Watershed Association, which has discovered buried streams around the city's northeastern neighborhoods. "It was just the old engineering - get it as quickly as possible off the street and as quickly as possible into the storm drain."

Kaushal estimates that Baltimore city and county have covered over more than 900 miles of streams. The water, however, never got the message. When it rains, the water continues to follow centuries-old flow patterns. It wants to go into the stream, whether buried or not, because that's where it always went.

Far more difficult than locating the streams has been restoring them, a process known as "daylighting." Many flow under roads or houses that realistically can't be torn down. Even where stream restoration is possible, the cost is about \$200 per linear foot - a large investment for projects in obscure locations that few will see. And even when a stream can be uncovered, it needs a large floodplain in which to drain, and often part of that has been paved over, too, said Bill Stack, the city's water resources chief.

"The opportunities for daylighting are very, very slim," he said. "We're lucky if we do one a year."

Stack said the city has uncovered one stream buried in a storm drain near Stony Run in North Baltimore. Workers removed part of the drain to create a meandering channel, instead of having water go through concrete and pipes. Funding came from city motor vehicle funds as well as a small state grant, Stack said. The city expects to begin work on a similar project next summer in the Maiden Choice area, using funds from the U.S. Army Corps of Engineers.

Stack agrees with Kaushal's assessment that the buried stream in Carroll Park has contributed to an "ecological Chernobyl" and said the city is trying to improve the water quality.

The problem is not limited to the Chesapeake Bay watershed. Nationwide, developers routinely paved

over streams, making ditches to direct the water away from the land, said Larry Larson, executive director of the Association of State Floodplain Managers. Only now, he said, are regulators demanding that developers take stormwater into account when planning for future growth.

"There are a lot of local governments that do a good job of dealing with this sort of thing. Some have learned the lesson the hard way," Larson said. "If you leave floods alone, they'll leave you alone. But you've got to give them room."

The Maryland Department of the Environment lets municipal governments enforce their own stormwater regulations. Last year, the General Assembly passed tighter controls on stormwater, recognizing that it carries major pollution into the bay.

"The state of the art is far different today than it was even 10 years ago, and it's continually evolving," said Tom Ballentine, policy director of the Home Builders Association of Maryland. "Two-thirds of Maryland was built before modern stormwater techniques were applied at all."

Today, developers would not be allowed to pave over small and intermittent streams. But that's assuming the city or county knows where those streams are. In Carroll County, for example, floodplain management specialist Jason Stick said he knows of no buried streams. But he acknowledged that his maps are 30 years old and not accurate.

"The data that went into making them was good in 1978, but we have better data now," he said. "There's more development, so the maps would be entirely different."

Kaushal and Elmore have not lost hope that more streams will see the light of day.

On a recent afternoon, the two turned into a cul-de-sac in [Timonium](#) and asked a resident if they could trek through his yard. After about 10 minutes, they reached Spring Branch, a babbling brook with sand-colored stones along its banks. Despite rain the day before, little trash had landed, and the water was clear.

Baltimore County restored the stream about a decade ago, and both scientists concluded that the work held up nicely.

"This is a very beautiful suburban stream," Kaushal said. "It would not look like this if it wasn't restored."

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