Stormwater management brings challenges, opportunities in Pennsylvania

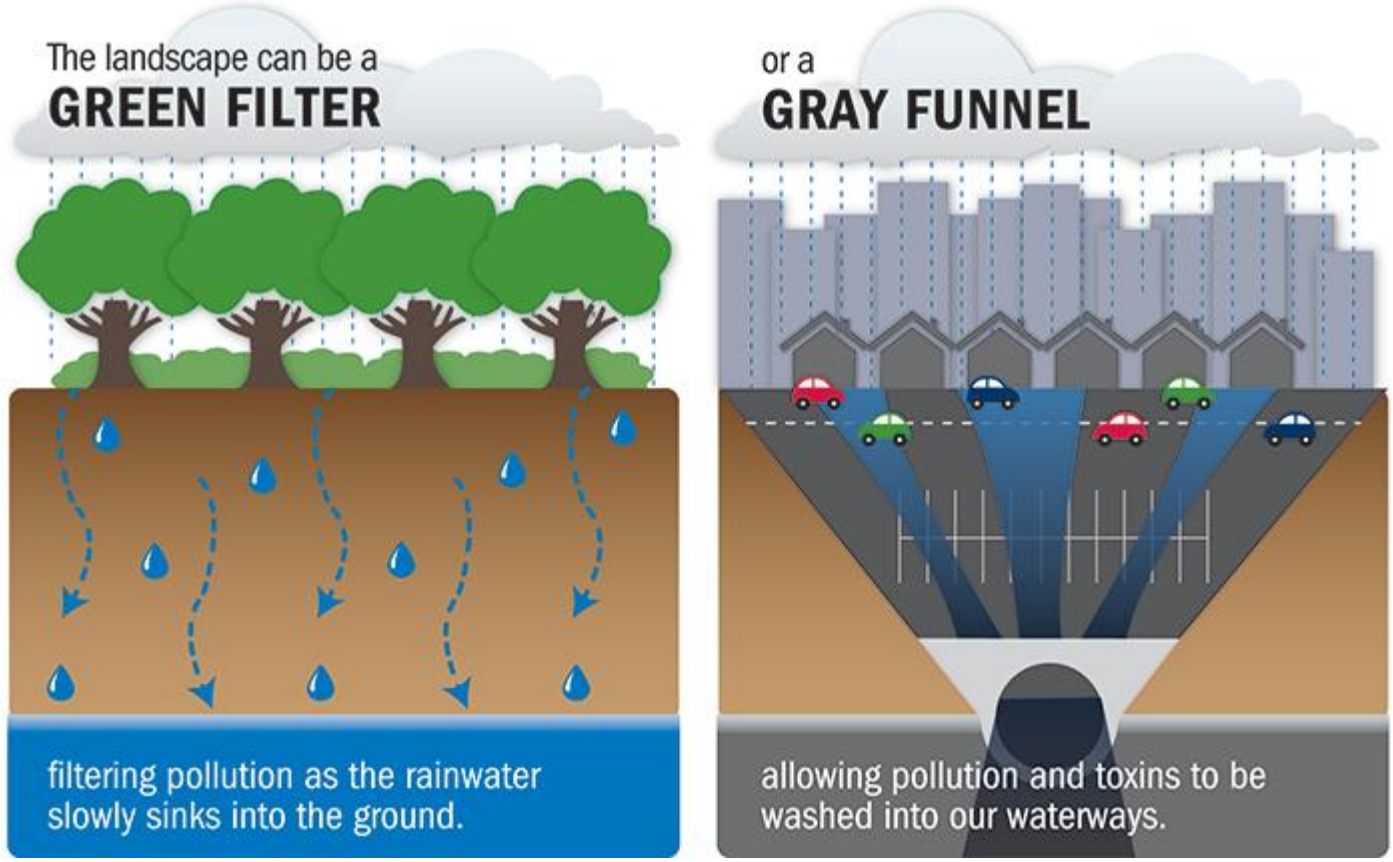
Pennsylvania's 86,000 miles of rivers and streams are a source of pride, beauty, and recreation for our families and communities. Unfortunately, unchecked polluted runoff continues to be a major, and growing, contributor to unhealthy waters in the Commonwealth.

As communities across the Commonwealth face pressure to update old stormwater infrastructure and accommodate growth, there is great opportunity to design stormwater systems that revitalize local communities and economies, reduce flooding, restore health to our rivers and streams, and support a vibrant quality of life.

The Problem with Stormwater Runoff in Pennsylvania

The next time it rains, watch the water move from your roof and your driveway down the street. Some of it soaks into the soil to become groundwater. Some of it evaporates into the air. But most of it is on its way to the nearest stream, lake, river, or wetland. It's the same for water from snowmelt, sprinklers, hoses, and other sources.

This water is referred to as stormwater runoff. As it flows over the land, it picks up and carries pollutants, litter, and sediments (soil). Along the way, excess fertilizers and pesticides, pet waste, motor oil and antifreeze, cigarette butts, and other debris on the streets all can hitch a ride.



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Stormwater runoff also draws heat from concrete and asphalt pavement as it travels, causing river and stream temperatures to rise. This creates multiple problems for our waterways. Because hot water can hold less oxygen than cold water, aquatic creatures that require high levels of oxygen find it harder to survive. Plus, critters like Pennsylvania's iconic brook trout and our new state amphibian, the Eastern hellbender, like cold, clean water.

Runoff also causes sudden increases in the amount and speed of water flowing into streams, resulting in increased erosion of streambanks and **increasing localized flooding**.

Based on scientific studies, as of 2020 more than 5,200 miles of Pennsylvania's rivers and streams were considered impaired[1] **due to stormwater runoff.** Stormwater is also identified as a significant, and growing, source of nitrogen and phosphorus pollution from Pennsylvania that ends up in the Chesapeake Bay, where it contributes to harmful algae blooms. When the blooms die and decompose, they create low-oxygen "dead zones " where fish, oysters, and crabs cannot survive.

What is Stormwater Management?

Historically, communities were designed to get rid of stormwater runoff as quickly as possible. This often meant building gutters and underground drainage systems with concrete and pipes

to funnel the water off streets and into storm sewers. **Storm sewers carry runoff—and all of the pollution it contains—directly and completely untreated into rivers and streams.** Many of the older communities in Pennsylvania also combined human sewage with stormwater into a single system.

Under the Clean Water Act, cities and urban areas must obtain permits that limit the amount of pollution they are allowed to discharge through their storm sewer systems.

TOM PELTON/CBF STAFF

According to state records, Pennsylvania has seen a 10 percent increase in precipitation since the 1970s[2]. By 2050, estimates are precipitation will increase another 8 percent. **This increase in short duration, high intensity rainfall threatens to overwhelm existing stormwater systems and increase stream pollution.**

Communities can't control the weather—but they can better manage stormwater. The way decision-makers design neighborhoods, streets, and green spaces like parks and urban landscaping can change where and how fast water flows into our streams and rivers. This is known as stormwater management.