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Environmental Education

Watershed Stewardship

Conservation Programs

What is Non-point Source Pollution and how is it Tied to Stormwater?

Non-point source pollution is contamination stemming from many sources, accumulating to negatively impact stream quality. Non-point source pollutants can be discharged over a wide land area, from many different locations, and most find their way to a stream through stormwater. When it rains, stormwater washes substances off the land and carries them into local streams. Much of this polluted “runoff” enters storm drains, which lead directly to local waterways commonly used for swimming, fishing or drinking water supplies. Snowmelt and irrigation have the same effect, carrying pollutants from plowed fields, city streets or suburban backyards. Sediment, nutrients, organic and toxic substances originating from land-use activities can all become non-point source pollution, washing into one stream at many different locations. What we do to the land, we do to the water.

Pollutants

Many sources can contribute to non-point source pollution. Stormwater runoff can contain toxic chemicals, petroleum products, oil, detergents, nutrients, bacteria, trash, heavy metals and many other things that can pollute our waterways. Bacteria can come from faulty septic systems or pet waste, which can also add excess nutrients to our waterways. Yard waste and fertilizers, especially when used heavily or just before a storm, contribute many more nutrients, like phosphorus and nitrogen. While these nutrients are good for plant life, in excess, they can disrupt aquatic habitat. Often, unnaturally large amounts of algae grow in nutrient-rich waters. When all that algae dies, its decomposition uses a lot of oxygen from the stream, which can create a “dead zone” where few things can live.

Herbicides and pesticides for agricultural or personal use contribute toxins to our streams. Sediment is also a major pollutant in waterways, muddying water, preventing fish from spawning, and generally destroying stream habitat. Sediment can come from improperly managed construction projects, eroding stream banks, and any land without appropriate plant cover or other erosion control. All these pollutants make it more difficult and costly to clean water for drinking, bathing or cleaning. According to the U.S. Environmental Protection Agency, “non-point source pollution is the leading remaining cause of water quality problems.” It is clear non-point source pollution negatively affects drinking water quality, recreation, fisheries and wildlife.



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Infiltration

Stormwater runoff is increased by human activities through construction, paving, soil compaction or changes in the vegetation growing on the land. As runoff increases, flooding often follows because the water is prevented from seeping into the ground as it naturally would. Like a filter, soil cleans water as it travels underground to springs or wells. Without this infiltration, groundwater supplies will continue to decrease, creating potential shortages for individual drinking water wells and public supplies that rely on public wells. Furthermore, the rush of water that occurs when stormwater does not infiltrate causes more erosion and degrades stream channels and aquatic habitats.

Solutions

Current stormwater regulations in Pennsylvania are aimed at reducing the impacts of stormwater runoff, increasing recharge to public and private water supplies, improving stream habitats and restoring the overall environmental integrity of watersheds. There are ways you can help prevent polluted stormwater runoff.

- Never dump anything into storm drains or streams.
- Check your vehicles for leaks and have any fixed. Recycle your motor oil.
- Wash your vehicles at a car wash, where the dirty water is cleaned and recycled instead of flowing to a storm drain. Wash other things indoors at a sink, so the water can be treated.
- Prevent any litter or lawn clippings from washing into roads with storm drains.
- Use fertilizers and other chemicals sparingly and never before it rains. Dispose of household chemicals properly.
- Avoid erosion by planting on any bare soil and raising your mower height. Consider putting in a rain garden to clean water and increase infiltration, or a rain barrel to hold back some of that rushing stormwater.
- Make sure your septic system is working properly.
- Pick up after your pets.
- Volunteer for a planting with the Perkiomen Watershed Conservancy to buffer streams from non-point source pollution.



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Sediment from eroding stream banks, like the one pictured here, is one example of non-point source pollution.

Photo credit: Krista Scheirer

Sources:

https://www.perkiomenwatershed.org/Stormwater/stormwater_management.aspx

<http://water.epa.gov/polwaste/nps/whatis.cfm>

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