PROHORT FACT SHEET

Solutions for Commercial Horticulture Professionals

Why Point the Finger at Nonpoint Source Pollution: Stormwater Run-Off

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Non-point source (NPS) pollution is both air and water pollution that comes from diffuse sources. *Diffuse sources* means that pollutants come from large spread out areas and therefore a single source cannot be identified. Although the pollution has original sources, the ability for the pollutants to move long distances, combined with the multiple sources of the pollution, make it NPS pollution.

NPS air pollution comes from sources such as industrial processes, automobiles and coal burning. NPS water pollution occurs when rainfall, snowmelt or irrigation runs over land or through the ground, picks up natural and human made pollutants and deposits them into rivers, lakes and coastal waters or introduces them into ground water. NPS water pollution comes from sources such as:

- Oil, grease and other vehicle discharges
- Pesticides and nutrients from lawns, gardens and agricultural areas
- Viruses, bacteria and nutrients from pet waste and failing septic systems
- Heavy metals from roof shingles and vehicles
- Sediment from eroding stream banks, improperly managed construction sites and crop and forest lands
- Thermal heat from impervious surfaces such as asphalt roads

The U.S. Environmental Protection Agency reports NPS pollution as the leading cause of water pollution in the United States today. Significant causes of NPS water pollution include runoff from agriculture, hydrological and habitat modification, silviculture and urbanization.

Because NPS water pollution comes from so many different sources, it is a difficult problem to solve with any one specific solution and difficult to regulate. Even though the effects of NPS pollution on waters such as the Hillsborough and Alafia rivers, Tampa Bay and many lakes and ponds may not be fully known, it is known that the pollutants result in harmful effects on fish and shellfish, wildlife, recreation, beaches and drinking water supplies. These pollutants also affect the aesthetics of where we live. Have you noticed the green slime on the surface of your conservation or retention/detention pond lately?

Stormwater run-off is one factor of NPS water pollution. Stormwater run-off is rain that runs off streets, rooftops, parking lots, lawns and other land surfaces into the closest water body. The runoff is not absorbed by the soil. This is because the soil may have reached its saturation point or the soil surface is covered with impervious surfaces such as roads, bridges, parking lots or buildings. As the water moves over surfaces, contaminants move with the water and get deposited into rivers, lakes, ponds and the Tampa Bay.

Natural areas such as forests, wetlands and grasslands are porous, trap rainwater and allow rainwater to slowly filter into the ground. Impervious or nonporous surfaces such as roads, bridges, parking lots and buildings prevent rainwater from filtering into the ground. Instead most of the rainwater, along with the contaminants, remains above ground and runs off either directly or through storm water drains into water bodies. As this surface water accumulates, it runs off in large amounts. The deposited water can have volume and velocity capable of eroding riverbanks and damaging the vegetation that hold riverbanks in place.

The sediment from contaminants and erosion causes turbidity or cloudiness in the water. The contaminated sediment includes oil, grease, toxic chemicals, nutrients, pesticides, bacteria, viruses, and heavy metals. The resulting cloudiness reduces the amount of sunlight that can reach lower depths and inhibits the growth of beneficial submerged aquatic vegetation (SAV). SAV is important because it provides a habitat for aquatic life, produces oxygen and traps sediment. As a result fish and shellfish that depend on this plant life are affected as their habitat deteriorates. If a hypoxic condition occurs where the level of oxygen in the water is very low the aquatic life will die. The lack of oxygen and increased bacteria as algae decays can result in a fish kill. Sediments can also clog fish gills and interfere with drinking water purification systems.

The combination of suspended sediments and excessive nutrients can create a eutrophic condition in a water body. Eutropic conditions occur when excess nitrates and phosphates by either natural or human means produce excessive plant growth and decay. Excessive or improper fertilization and failing septic systems are the two main human contributors of nitrate and phosphate water pollution. The plant growth is usually in the form of simple algae rather than beneficial SAV. This algae “bloom” can cause a severe reduction in water quality depleting oxygen and turning water to a green, yellow, brown or red color.

Over the last decade and especially recently attention is being focused on stormwater pollution related to urbanization. This is because urbanization produces a wide variety of pollutants and large amounts of runoff. As little as 10 percent impervious cover in a watershed can result in water body degradation. Did you know that a typical city block contributes greater than five times more runoff than a woodland area of the same size?

For information on managing urban stormwater runoff and pollution look for the next article in the series *Why Point the Finger at Nonpoint Source Pollution: Managing Urban Runoff and Pollution* or see the UF/IFAS Florida Friendly Landscaping™ website at http://fyn.ifas.ufl.edu/.

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