



Phosphorus & Other Nutrients in Stormwater

Effects of Phosphorus and Nitrogen in Stormwater

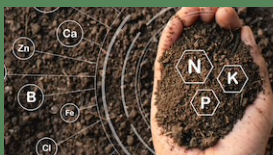
Phosphorus and nitrogen are naturally occurring elements that are vital to many processes on Earth, but when they end up in our waterways they tend to cause problems. When in water, nitrogen and phosphorus often form ammonia, ammonium, nitrate, and phosphate compounds. These compounds can be toxic to fish and other aquatic life, cause health problems if they end up in drinking water, and disrupt dissolved oxygen (D.O.) levels in water bodies. Their worst outcomes, though, are eutrophication and harmful algal blooms. Eutrophication is a natural process of algae growth that is prematurely sped up by a surplus of nutrients in the water. The resulting algae growth not only decreases

recreational use, but it also clogs water pipes and lowers the quality of life for aquatic organisms by consuming dissolved oxygen. Another destructive consequence of nutrient overload is harmful algal blooms (HABs). HABs can be promoted by excessive nutrient concentrations. They are caused by bacteria, usually cyanobacteria, and produce toxins that are detrimental to human and aquatic health. Presence of algal blooms can decrease property values and increase water bills, since removing the blooms is such an expensive process.



Phosphorus

Phosphorus is a macro-element that is found in soil. It assists in photosynthesis, energy transfer, and the breakdown of carbohydrates in plants.



Nitrogen

Nitrogen is an element that can be found in animal manures, sewage, and soil organic matter. It plays an essential role in plant growth.

How can you prevent nutrient overload in nearby water bodies?

Phosphorus and nitrogen can be found in fertilizers, wastewater, yard waste, and animal waste. In order to prevent these elements from polluting local waterways, we need your help! First, please be sure to pick up after your pets. It may seem like a small task, but a little goes a long way. Next, please keep your yard waste off the streets to avert it from going down the storm drains. One of the easiest ways to do this is to just leave your grass clippings on your lawn! Doing this can actually promote growth. Lastly, try to use fertilizer sparingly and only in areas that need it, and do not apply it on windy or rainy days.

A few other little tricks include avoiding phosphate-containing soaps and cleaners, replacing old appliances with energy and water efficient ones, and using a commercial car wash instead of washing it yourself — commercial car washes are required to dispose of wastewater safely and correctly!



Harmful Algal Bloom on Lake Erie. Credit: NASA.

Citations

“Nitrogen and Water.” USGS, United States Geological Survey, www.usgs.gov/special-topic/water-science-school/science/nitrogen-and-water?qt-science_center_objects=0.

“Nutrients and Eutrophication.” USGS, United States Geological Survey, www.usgs.gov/mission-areas/water-resources/science/nutrients-and-eutrophication?qt-science_center_objects=0.

“Phosphorus and Water.” USGS, United States Geological Survey, www.usgs.gov/special-topic/water-science-school/science/phosphorus-and-water?qt-science_center_objects=0.

“Toxic Algae Bloom in Lake Erie.” NASA, National Aeronautics and Space Administration, 5 Oct. 2011, earthobservatory.nasa.gov/images/76127/toxic-algae-bloom-in-lake-erie.

“What You Can Do: In Your Home.” EPA, Environmental Protection Agency, 10 Mar. 2017, www.epa.gov/nutrientpollution/what-you-can-do-your-home.