

## WHAT ARE NUTRIENTS? HOW DO THEY HARM WATER QUALITY?

Basically, nutrients are what we find in fertilizers. All living things need nutrients to survive. Nutrients, such as nitrogen, phosphorus, and potassium, are chemicals essential for plant growth.

On land, these nutrients stimulate the growth of crops, livestock, lawns, golf courses and other manicured landscapes. But in waterways, they stimulate the growth of aquatic plants, including algae. When too many nutrients are present in a body of water, it can cause an overabundance of algae, commonly called a "bloom". When these masses of algae die and decompose, they use up valuable oxygen in the process. Reduced oxygen levels in the water can cause fish kills and harm other forms of aquatic life. These events have the potential to not only affect wildlife, but also recreation, tourism, and even human health.

## HOW DO WE PROTECT OUR RIVERS, LAKES, AND STREAMS?

**Fertilize responsibly.** Before applying fertilizer, get your soil tested to see what kind and how much fertilizer is needed. If you live in the James River watershed, you may qualify for a FREE soil test. Contact us for more details. Otherwise, consult with your county extension office for rates and testing instructions.

When you fertilize, use only what is necessary- do not over-apply! Nutrients and money are wasted with over application, and excess nutrients often runoff into the nearest waterway.

**Focus on overall soil health.** Focusing on soil health and growing conditions can reduce or eliminate your dependence on conventional fertilizer. The addition of nutrient rich organic matter, such as compost, will improve the soil's biological health and water-holding capacity. Keeping the soil covered at all times and reducing compaction are additional steps that can improve the overall health and productivity of soil.

**Manage animal waste.** All animal waste contains nutrients and bacteria. If not properly managed, waste from livestock, pets, and unnatural concentrations of wildlife can cause problems for our local waterways.

### JAMES RIVER BASIN PARTNERSHIP

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### MISSION

The James River Basin Partnership is working to improve and protect the water quality of the springs, streams, rivers, and lakes in the James River watershed. Help us protect our beloved Ozark waters!



The U.S. Environmental Protection Agency Region VII, through the Missouri Department of Natural Resources, has provided funding for this project under Section 319 of the Clean Water Act.

# HELP!

In the Ozarks, we love our beautiful rivers, lakes, and streams. But some of these waters are in trouble-- and much of that trouble comes from an over-abundance of nutrients.

## Keep Nutrients Out of Our Rivers and Lakes



On farms, when pastures are healthy and not overgrazed, the nutrients in livestock manure tend to stay put and return to the soil. On overgrazed pastures, nutrients can more easily runoff into a nearby body of water. In confined livestock operations, feedlots and waste lagoons must be properly designed and managed to prevent heavy concentrations of animal waste from entering our waterways. Consult with your local NRCS office for information on rotational grazing and other best management practices.

In urban areas, pick up after your pets to avoid “poo-luting” our urban streams. This applies to both your yard and public greenspace. Also, resist the urge to feed urban waterfowl and other wildlife. Feeding wildlife creates unnatural concentrations of animals (and their waste), which can spread diseases, become a nuisance to humans, and cause other negative impacts to the landscape.

**Maintain vegetated buffers.** Whether in an urban or rural environment, bands of healthy vegetation along streams and drainageways will filter out nutrients that run off adjacent land. An ideal buffer contains a mixture of trees, grasses, and shrubs that utilize nutrients from stormwater runoff, hold streambanks in place, and provide valuable habitat for wildlife.

**Maintain onsite wastewater systems (septic tanks).** Human waste contains nutrients too. A malfunctioning or unmaintained septic system can leach nutrients and bacteria into our surface and groundwater. Homeowners can take several steps to protect water quality and prolong the life of their system.

- Onsite wastewater systems must be properly designed and installed based on site conditions. There is no such thing as a “one-size-fits-all” design.
- Routine maintenance will prolong the life of your system and ensure that it is effectively treating wastewater before it is discharged into the environment. Work with a reputable, local contractor to create a maintenance schedule for your system.
- Protect your investment by taking care of your drain field. Don’t drive vehicles and other heavy equipment over your lateral lines and avoid planting trees or other deep-rooted plants that may clog the pipes.

