

FAQ

Phosphorus

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What is phosphorus?

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Phosphorus is an important nutrient that both plants and animals (including humans) need to survive! Phosphate is the most common form of phosphorus used by plants, animals, and other organisms. It plays major roles in the formation of DNA, cellular energy, and cell membranes (and plant cell walls).

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What are some sources of phosphorus?

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Soil erosion and water runoff is a contributor of phosphorus to streams and waterbodies. During heavy precipitation events and floods, the edges or banks of a waterbody can erode. When rainwater can't sink into the ground, it flows over the ground surface as stormwater runoff and can transport phosphorus from banks and surrounding land areas into the lake. The phosphorus transported into waterbodies by stormwater runoff is called nonpoint source phosphorus – and it can come from lawns and gardens, pet waste, home wastewater treatment systems, agricultural lands, and more.

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What are the farmers doing?

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Thanks to the Skaneateles Lake Watershed Agriculture Program (SLWAP), farmers in the Skaneateles Lake watershed have implemented best management practices (BMPs) to reduce phosphorus from entering Skaneateles Lake. Farmers have been participating in the SLWAP program since 1994 – and many farmers have been planning and implementing best management practices for years before that. Some examples of BMPs implemented by farmers in the watershed include: vegetated buffer strips, cover cropping, and streambank stabilization. For more information on farming and Skaneateles Lake, visit our [Agriculture](#) page.

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What are different forms of phosphorus?

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Phosphorus exists in water in two main forms: dissolved and particulate (attached to or a component of particulate matter – for example, phosphorus can attach itself to soil particles).

Dissolved phosphorus is available to aquatic organisms, and can come from fertilizer, human or animal waste. There is also a small amount of dissolved phosphorus that exists naturally in soils. When it rains, runoff water can carry this phosphorus into waterbodies. All soils naturally release some phosphorus.

Particulate phosphorus mainly comes from soil erosion, and is less available than dissolved phosphorus. Particulate phosphorus can accumulate in lakebeds (bottom of a lake) over time and can slowly release dissolved phosphorus from sediments.

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When is phosphorus a problem?

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Phosphorus is essential for life, but too much can cause problems. High amounts of phosphorus may result from poor agricultural practices, stormwater runoff from lawns, leaking septic systems or discharges from sewage treatment plants. Too much phosphorus can cause increased growth of algae and large aquatic plants, which can result in decreased levels of dissolved oxygen— a process called eutrophication.

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How does phosphorus impact water quality?

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In appropriate quantities, phosphorus can be used by aquatic plants for normal growth. Without human influence, phosphorus is usually considered the “limiting nutrient” in aquatic ecosystems. This means that the amount of phosphorus that is available controls how fast algae and aquatic plants can grow. However, too much phosphorus can lead to water quality problems. Since phosphorus usually occurs in small amounts in the natural environment, even small increases can negatively affect water quality.

Recreational, tourism, and cultural values of lakes and streams can suffer. For example, when the algae and aquatic plants die, their decomposition uses up oxygen, leaving less dissolved oxygen for fish to survive. This can cause fish to die.

Another negative effect is the growth of harmful cyanobacteria, which can dominate when phosphorus levels are high. This can lead to harmful blooms that may release toxins, causing health issues for humans and animals.

Other negative effects of too much phosphorus include: reduced water clarity (turbidity), undesirable conditions (like too much plant growth), and changes in populations and species of plants and animals that live in a waterbody.

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How can homeowners help?

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Homeowners in the Skaneateles Lake watershed also play an important role in phosphorus control and can help protect water quality. Property owners can make sure their septic systems are well-maintained and designed, test soil before applying any nutrients/fertilizer, check that any fertilizer has zero phosphorus (the middle number on the bag), clean up pet waste from yards, use porous pavement, and landscape for water quality. The City of Syracuse SLWAP can also help residential landowners with soil testing and interpretation of results by calling 315-457-0325.

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References:

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