

A Closer Look at Pond Nitrification

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NATURE'S



POND FILTRATION SYSTEM

The nitrification process, or the nitrogen cycle, plays a crucial role in creating a healthy pond. This natural process converts toxic nitrogen waste products into less harmful compounds. Through this form of biological filtration, ponds are transformed into life-sustaining systems. Understanding the nitrogen cycle provides valuable insight into the health of your pond. Discover how you can maintain efficient biological filtration by learning the basic principles of the nitrogen cycle.

What is biological filtration?

Biological filtration is the process of converting potentially harmful chemicals into a less reactive form by means of biological activity. Nitrification is an important example of biological filtration. During nitrification, oxygen-loving bacteria break down nitrogen waste products (ammonia and nitrite) and convert them into the relatively harmless by-product, nitrate. These beneficial nitrifying bacteria establish the foundation for efficient pond biological filtration. Their numbers directly influence the efficiency of pond biological filtration. In other words, more nitrifying bacteria mean low or undetectable levels of toxic ammonia and nitrite.

Requirements for healthy bacterial colonies

Nitrifying bacteria require certain conditions in order to thrive. To maintain large colonies, they need a steady food source of ammonia or nitrite and oxygen-rich water. Fish waste and decaying organic material supply ammonia and vigorous water movement provides oxygen. Agitation of the water's surface allows water to come into greater contact with air and provides a site for gas exchange. Harmful gasses are released and oxygen is incorporated into the water. These beneficial bacteria also require water temperatures above 55°F to effectively process the nitrogen waste products.

Cultivate beneficial bacteria

Nitrifying bacteria occur naturally in your pond. By providing ideal growing conditions, you can increase their population and fortify pond biological filtration. Begin by supplying suitable areas for bacterial growth. [Biological filter media](#) are specifically designed to cultivate a large number of beneficial bacteria in a centralized location. Nourish nitrifying bacteria by maintaining oxygen-rich water. Install a [water fountain](#) or a [pond aeration device](#) to promote proper gas exchange that replenishes pond oxygen content.

what you need to know about ammonia

Ammonia is the most toxic of the nitrogen pollutants. It is extremely toxic and when ammonia is present, fish will demonstrate signs of stress, including erratic swimming behavior. High levels of ammonia attack the gills first and cause fish to gasp at the water's surface. Continued exposure affects their fins and skin and eventually their entire system is under attack. Use our [Live Nitrifying Bacteria](#) to fortify biological filtration and prevent ammonia from reaching dangerous levels. In the event of an unexpected ammonia spike, use fast-acting [Pond AmQuel Plus](#) to detoxify ammonia.