

Biochar: A Natural Solution to Safely Filter Excess Nutrients



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The use of [biochar](#) is an emerging technology in nutrient management. Nutrients such as phosphorus and nitrogen, in suitable quantities, are necessary for aquatic ecosystems to flourish. However, excess nutrients introduced to lakes and ponds through human impact, leaf debris and stormwater runoff can lead to the growth of nuisance plants and algae blooms. Restoring balance to a lake or pond plagued with [water quality](#) issues, or proactively preventing these issues, can be naturally achieved with the latest technology in nutrient management: biochar.

Biochar is produced from wood products processed in a high heat, low oxygen environment to create a highly porous, carbon-rich substrate. The physical structure and ionic properties of the biochar creates an affinity to absorb contaminants. Independent [laboratory testing](#) of contaminated water has shown significant removal of nutrients, heavy metals, hydrocarbons, volatile organic compounds (VOCs) and even suspended solids by the introduction of biochar.



Biochar is processed into particles from fine powder to chip size, so the best way to introduce it to water is in permeable socks or bags containing the product but allowing water contact. These bags can be suspended in the water column or installed in racks or structures where water is most likely to flow through or past the material. Over time, the bags absorb [pond nutrients](#), suspended solids or other unwanted substances from the water until all binding sites and pores are filled. Depending on water quality, the socks may remain active for up to two years. After they are used, the bags can be reused as an amendment to enrich water retention and nutrient concentration of soils and other landscaping.

Since biochar is produced from renewable resources and can be produced from wood that would otherwise be burned for fuel or trash, the use is considered eco-friendly and could help reduce greenhouse gasses and carbon

emissions. And while testing is still in the initial phases, applications of biochar may be the next revolutionary and eco-friendly water treatment to come to the market.

Lakes and ponds with moving water are excellent candidates for the use of biochar because the flow will naturally circulate nutrients for absorption by the socks. Waterbodies without water movement would benefit from pairing biochar with the installation of [diffused aeration](#), a submersible circulating pump or fountain to achieve faster and more consistent results. Think biochar could be a good fit for your lake or pond? Our freshwater management experts are prepared to analyze your waterbody and create a custom nutrient management plan to help restore balance in your [aquatic ecosystem](#).

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[Erin Stewart](#) is an aquatic biologist and regional manager based in Colorado. She has managed lakes and ponds in the region since 2008. Erin has in-depth knowledge of water quality and its impacts to fisheries and the overall health of local aquatic environments. Erin has interests in aeration design, fisheries management and wetlands restoration. She has also worked on several projects involving the management of cyanobacteria in drinking water reservoirs and recreational lakes in Colorado.

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