

Enhance Pond Filtration with a Bog Filter

Drs. Foster & Smith Educational Staff



Imagine a pond filtration system that helps maintain water quality and produces beautiful blooms. It may sound strange, but that is exactly what a bog filter does. Applying the principles of bioremediation, bog filtration employs a lush planting of gorgeous, water-loving plants to remove excess nutrients and improve water quality. Very little equipment is required to install this low maintenance filtration system. And best of all, unlike bulky conventional filtration systems, you'll want to show off your bog filter rather than conceal it. Learn more about this fascinating aspect of water gardening and find out how you can incorporate a bog filter to your existing water feature.

What is a bog filter?

A bog filter is an area dedicated for the dense planting of water-loving marginal or bog plants. It is a smaller, supplementary pond usually 10-20% of the size of the main water feature. The bog filter can be located inside or adjacent to the main pond. Whether it is internally or externally located, the bog filter must be connected to the main pond by a water circulation system consisting of plumbing and a pump. As water from the main water feature is fed into the bog filter, plants remove the nutrients and the biologically filtered water is returned to the main pond.

benefits of bog filtration

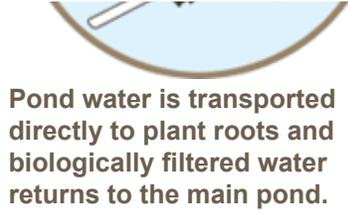
In addition to water-clarifying benefits, bog filters provide the avid water gardener many pleasures. Bog filters dramatically increase planting options and offer a satisfying project that enhances an existing water garden.

Principle behind bog filtration



In essence, a bog filter is a natural wastewater management system for your pond. This effective example of biological filtration relies on plants to extract such pond pollutants as organic waste, ammonia, nitrite, nitrate, and phosphate before they can accumulate and negatively affect water quality. This natural filtration restores balance to the pond environment by increasing the ability to process or export excess nutrients. The result is cleaner, clearer, and healthier pond water.

What makes bog filters different from conventional pond planting is the manner in which the plants are grown. In bog filters, plants are grown hydroponically in relatively coarse, nutrient-poor substrate (pea gravel). This planting method "trains" the plants to search for nutrients in water rather than in substrate or



Pond water is transported directly to plant roots and biologically filtered water returns to the main pond.

planting media. Conventional potted pond plants passively remove nutrients from fertilized planting media and rely minimally on pond water for nutrients.

Furthermore, bog filters incorporate a [circulation pump](#). This pump actively draws water from the main pond and introduces it directly to the plant root system. A diffusion system, similar in principle to a water fountain, is placed at the bottom of the bog

filter. This water conduit system relies on the up-flow principle so water drawn from the main pond percolates up through the planting media and bathes the plant root with nutrient-rich water. This method not only increases water circulation through the root system for healthy plant growth but also provides additional mechanical filtration.

How to install a bog filter

One of the most beneficial features of the bog filter is its versatile ease-of-construction. It can be installed internally or externally relying on basic pond construction principles.

Whether you install an internal or external bog filter, you will need a pump capable of turning over the total volume of pond water 1-2 times an hour. You will also need a water conduit system to transport and diffuse water into the bog filter.

The water diffusing system can be as simple as a spray bar constructed from PVC pipes with small holes drilled into them every 3 inches (**Note:** To prevent clogs, be sure these drill holes are smaller than the diameter of the pea gravel you intend to use). Using elbows and connectors, the PVC pipes can also be configured into an "H" shape or a grid. Make sure the end is capped or sealed so water flows out of the drill holes. To simplify plumbing, match PVC diameter to pump outlet diameter. Attach the pump to the water diffusing system to supply water from your main pond into the bog filter.

The "construction" of the bog filter now consists of creating a "mini pond" to house the water diffusing system and the plants. Start by designating a level area for the bog filter and construct a retaining wall out of landscaping rocks (this step is done right after liner installation). The area within the wall will become your bog filter. Installing an internal bog filter is most conveniently done during new construction. However, it can also be installed by temporarily draining the pond during spring.

For an external bog filter, locate it adjacent and slightly higher than the main pond. An external bog filter is similar in principle and construction to a waterfall and relies on a gravity return system. An external bog filter can be made using a liner or even a preformed pond.

Installation

Once an area is properly selected and prepared, the water diffusing system can be installed. Place the PVC water diffusing system on top of the liner (holes facing up) and fill the bog filter 1/2 to 3/4 with rinsed pea gravel. Remove your marginal or bog plants from their pots and arrange them on top of the pea gravel. Then cover the plants up to their crowns with pea gravel. Once you fill your pond with water, you can plug in your water pump to "activate" your bog filter. Like any pond filtration system, the pump should be placed opposite the bog filter to maximize filtration.

Related Information

- [Creating a Natural Pondscape](#)
- [Building a Backyard Wildlife Habitat? Learn from Nature](#)
- [Create a Harmonious Backyard Garden](#)

plants for bog filters



Pickerel Rush



Sagittaria montevidensis



Umbrella Palm



Variegated Sweetflag



Yellow Iris



Black Gamecock Iris



Lizard Tail Lily





Black Magic Taro



Violet-Stemmed Taro

Find these beautiful [bog plants](#) at LiveAquaria.com.