

## Small Goldfish Pond

**Give goldfish the space they need to grow.**

*By Stephen M. Meyer*

**Q.** I have been a goldfish lover for about 10 years. I currently have six goldfish in a 10-gallon tank. I use an undergravel filter in the aquarium. Is there a filter that is better suited for goldfish, and if so, will it help rid my tank of algae? Are there other fish that can live with goldfish? I have tried to research these questions, but with little success.

**A.** In keeping with my standard sermon, I have to begin my response by saying that if you are a true goldfish lover, you should either 1) get one or more larger tanks, or 2) dig a garden pond to house your pets. A 10-gallon tank is really not adequate for keeping goldfish healthy for more than a short time.

An undergravel filter is a combination mechanical and biological filter (but is intended for use only as a biological filter). By pulling water through the gravel bed, suspended particles are screened from the water and held among the gravel pieces. Only some of this solid material is broken down by bacterial action. Moreover, the bacteria themselves tend to gunk up the gravel bed in direct proportion to the amount of solid material drawn into the bed. Not surprisingly, over time the gravel bed clogs — which is, after all, what we expect a mechanical filter to do.

Now, if the fish load is very light (much less than I have ever seen in any hobbyist's tank) the bed may not clog at all. But under normal conditions regular cleaning is required. The amount of solids that goldfish produce is much greater than most tropical fish because of their large size and voracious appetites. Therefore, undergravel filters in goldfish tanks tend to clog more often and more severely.

This is not an argument against undergravel filters, but a caution that in goldfish tanks undergravel filters tend to demand more maintenance. If you don't want to provide this maintenance, then an undergravel filter is not a good choice.

As noted above, an undergravel filter also functions as a biological filter, providing a home for nitrifying bacteria to detoxify ammonia. And, as long as well-oxygenated water can flow through the gravel, this setup works fine. However, because of the high waste loads produced by goldfish, maintaining this flow of oxygen-laden water through the gravel bed becomes a problem. Thus, undergravel filters in goldfish tanks bear close watching and demand regular cleaning.

Are their "better" solutions? There are certainly alternatives. I believe that an external power filter is a more practical mechanical filter, and is easier to maintain. In fact, if you maintain what I consider to be a healthy (low) fish load in an aquarium, no other filtration will be necessary. In other words, the nitrifying bacteria on the surface of the gravel bed will be more than enough to handle the ammonia, without the need to pump water through the gravel. This is how all of my goldfish tanks are set up.

A sponge filter also does a great job as a biological filter, and as a mechanical filter too. As with the undergravel filter, solid matter will eventually clog the sponge and significantly reduce the biofiltration.

Some goldfish breeders claim that undergravel filters used in tanks with long-tailed goldfish lead to frayed tail ends. This is allegedly a consequence of the downward flow causing the fragile tail lobes to drag along the gravel. This may well be true, but I cannot say so from first-hand observation.

Because goldfish tend to be peaceful scavengers, they should get along with almost any fish as long as the tank is not too crowded. But, remember, goldfish are coolwater fish — not tropical fish. Tankmates should also be comfortable in an unheated tank kept at room temperature. Frankly, I would not mix goldfish with other species because goldfish — fancy goldfish, in particular — are ungainly mutants that do not compete well with fish that retain their natural forms.

Algae problems are caused by a combination of excess light entering the tank and excess nutrients in the water. The solution to the former is shading your tank from sunlight or cutting the duration of artificial illumination substantially.

Excess nutrients are most likely the result of overfeeding. Healthy ornamental fish should always be hungry — but they should not be fed to satisfy that hunger. Try cutting back feedings by 50 percent. Animal studies show that fish that are underfed live longer and healthier lives.