

How to Change Pond Water

It is good to change pond water, but how should it be done?

By Stephen M. Meyer

Q. We have a 1,500-gallon pond with a dozen small koi. There are some plants around the inside edge of the pond, and the pond water is treated with a biological filter. Ammonia levels are too low to measure, dissolved oxygen is around 6.6 ppm, and the pH is near 6.8. We have heard that it is good practice to change the pond water. How often should we change the water and how much water should we exchange each time?

A. You are correct in noting the value of water changes. Most pondkeepers consider regular exchanges of water to be part of good pond management. Some folks change up to 50 percent of the water each week, whereas others merely top off their pond to compensate for evaporation.

There really is no firm rule of thumb for this. Certainly some water change is called for because no filtration system — biological, chemical, mechanical, or a combination of these — keeps the water free of dissolved organics. Therefore, pollutants of many kinds build up in recirculated pond systems.

Recent monitoring of natural ponds in New England that are several acres in size reveals that they turn over their entire volume in three to five days on average. This might be a starting point for establishing a rule, but I would not be surprised if most pondkeepers would find such large volumes unmanageable. Water shortages are a growing problem around the nation, and water is becoming expensive. Moreover, chlorine is increasingly common in water supplies and therefore large and frequent changes with chlorinated water might pose a significant threat to your fish.

Another way to think about this is to consider the stability of the pH in your water. In general, pollutants associated with fish and fish waste products (including an operating biological filter) acidify the water. Thus, unless you have water that is high in alkalinity (that is, water that is very resistant to lowering the pH), you might peg water changes to downward shifts in pH. All you need do is replace enough water to stabilize the pH at its normal value. This might mean changing 20 percent of the water each month, or 20 percent per week, depending on the water quality, fish load and so on.

I have hooked up an overflow system in my ponds that allows the rain to make water changes for me. As seen in the accompanying diagram, when the rain raises the water level above the pipe outlet, water is drained from the pond bottom. I do supplement this process every week with a 10-percent water exchange using tap water in order to add alkalinity.

Topping off a pond to compensate for evaporation is not considered a water change because no pollutants are removed in this process. The goal is to reduce the concentrations of dissolved compounds in the water.