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## Pond Water Testing: Is it necessary?

The answer is YES!!!! Water testing is very necessary. The tests are inexpensive, quickly performed, and can save you a world of agony in fish issues. When a pond keeper calls me with a fish issue, the first thing I ask is: "Have you tested the water?" Usually the answer is "not yet". Or, "Oh, I never do that, my water is always clear." As a "koi crazy" person, this is so exasperating to me. The pond water is your fish's environment, rather like air is ours. The air can look clean but still hold gases that are invisible yet toxic to us. The same is true of your pond water. It can contain invisible but toxic ammonia, or

nitrite, or nitrate, or a pesticide. If you test regularly, at least weekly, you will begin to know the pattern of your pond, and will know immediately what the problem IS NOT, so that you can weed out possibilities of what is wrong in your pond, and causing distress to your fish. This helps you to identify the problem, and more quickly fix it, so your pond fish will be more healthy and happy.

The normal Nitrogen Cycle that happens unobserved by we pond keepers starts with your fish. Fish poop in the water, which contains toxic ammonia. There are beneficial bacteria in the water which convert ammonia into toxic nitrite. There are beneficial bacteria in the water which convert harmful nitrite into nitrate. Nitrate is consumed by plants which give off oxygen that benefits the fish, completing the cycle. If any part of this cycle is interrupted, imbalances harmful to your pond life can happen. Pond water testing can help identify the imbalance so it can be corrected. Assuming that you ALWAYS use a dechlorinator to remove chlorine from tap water to render it fish safe, you will not need to test for the presence of chlorine. Thus the basic tests are pH, total alkalinity, ammonia, nitrite, and especially if you do not have plants in your pond, nitrate. I will tell you why . . .

pH measure is the acidity or alkaline base of the pond water. 7.0 is considered neutral. Goldfish and Koi are most happy in a pH range of 7.4 - 7.6. This is not to say that they cannot survive in pH outside of this ideal range, they can, but if you can manage to keep the pH in this range, everything else in the water balance functions better.

Total Alkalinity (TA) determines how quickly the pH can fluctuate. It is a buffer for the pH. A total alkalinity between 80 & 120 is ideal. My pond tends to have a low total alkalinity, so I test and adjust it weekly. That way my pH stays in the proper range. Years back, I did not test the total alkalinity which was in the 30ppm range, and my pH fell, and my Nitrite surged into the toxic range. The white fish in my pond turned pink! All my koi were stressed. I performed a 50% water change, and still had Nitrite above acceptable levels. I was perplexed. My filtration media was mature, and more than capable of handling my fish load. Then I took my own advice and tested EVERYTHING. I discovered the TA was extremely low and my mature beneficial bacteria had become inactive. The "good" bacteria were still there, just taking a nap! Within hours of adding the proper amount of Total Alkalinity Booster, the nitrite level began to lower and the next day, my fish were again swimming normally, much to my relief. Such a simple solution, but one I would not have discovered had I not tested my water.

Ammonia is toxic to fish and gets into water several ways. First ammonia is created when tap water is neutralized. Water authorities put chloramines into the water to sanitize, and they do not evaporate out like chlorine does. When the chloramine bond is broken, ammonia is created. Be sure that your tap water neutralizer contains an ingredient to neutralize that ammonia until your system can break it down. Call me and I can recommend a very good, pond concentrated one.

The second way is by fish wastes. If you do not have a mature population of beneficial bacteria on your filtration media, ammonia can rise to harmful levels. Ammonia can be generated by an overfed, or over populated fish count. There are products to temporarily bind ammonia, allowing you time to correct the problem, as well as products to quickly cycle and

mature the beneficial bacteria population in your filtration system.

Nitrite is also toxic, and is the next step in the Nitrogen cycle. (Remember my experience with this, resulting from low TA.) If you've had an ammonia surge, which you have corrected, you can anticipate a nitrite surge afterwards. There are several ways to help your fish survive, including correcting your TA level, adding nitrifying cultures, or a salt level. Check with your pond professional to determine which is best for your situation.

Nitrate is normally never a problem in ponds with plants, as the plants absorb it during the photosynthesis process. In koi ponds however, where plants are less prominent or nonexistent, a 20% per week water change will usually keep the Nitrate level down to non-harmful levels. I carry an organic product which will reduce Nitrate levels without water changes. This is very convenient during drought restrictions or when you are in a time crunch and don't have the time or inclination to perform water changes.

Finally, if you have tested your water and all the parameters are within acceptable levels, but your fish are distressed, you know to look elsewhere for the cause. Is it possible that an insecticide (such as ant poison) got washed into your pond? Did a neighbor spray a fungicide on their roses, which may have drifted into your pond? There are not water tests easily available to determine this cause, so a major water change is required to dilute the contaminants. ALWAYS use a tap water neutralizer when adding fresh water. A liquid bandage, such as Perfect Pond Protection, will re-slime your stressed fish, adding electrolytes and aloe vera to sooth burned tissues and help to heal the fish, possibly saving its life. Try to determine the cause so that it can be prevented in the future.

Okay, that is my story and I am sticking to it! It is very easy to test these parameters in your pond water, and can help you avoid a fish catastrophe. So please test your water, and save you and your fish a lot of stress and heartache!

**Mary's TIP 1:** Don't ever feed your fish "cheap" catfish or game fish food. Both contain ingredients which koi and goldfish cannot digest, resulting in malnourished fish and LOTS of pollution coming out the other end. Your fish will eat like crazy, as they literally starve. Please feed an easily digestible, properly balanced koi and goldfish food that will ensure the nutrition and health of your fish.

**Mary's TIP 2:** Always set your kitchen timer, or phone timer if you have to leave the pond while topping it off or refilling it. This is an iron clad rule at our house, and has saved my fish from overflowing with chlorinated tap water many times. It is easy to forget that hose still running outside while you are on the phone or otherwise distracted inside. Don't be a regretful pond keeper!

Happy Pond keeping!



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