Baking Soda Isn't Just For the Fish in Your Refrigerator

By Larry Lunsford

Previous Koi articles have warned that you need to keep adequate levels of carbonates and bi-carbonates in your pond to maintain healthy pH levels. Carbonates and bi-carbonates will buffer water and will keep the pH from going too high or too low. Your bio-filter produces acid and you need to maintain adequate buffers in your pond to keep a stable pH. You should maintain an alkalinity of 100ppm to 200ppm as a minimum.

One fall, I moved my Koi into a basement pond. For the first few days I closely monitored the water chemistry to see how well the filter was performing. After the ammonia fell off, I noticed that the pH had dropped from 8.0, its normal level, down to 7.0. I then checked the alkalinity and found the level to be about 40ppm which I previously would have thought to be enough. I added a little baking soda and the pH came up to 7.5 and the alkalinity increased to 50ppm. Adding some more baking soda brought the pH up to 8.0 and the alkalinity to 75ppm. The next day I checked again and found the pH down to 7.5 and the alkalinity still at 75ppm. Adding still more baking soda brought the pH back up to 8.0 and the alkalinity to 90ppm. Not wanting the pond to be on the verge of a pH drop, I added more baking soda and the pH has remained at 8.0.

The lesson from all this is that you need at least 100ppm of alkalinity. It would be a good idea to stay well above this to avoid problems.

Another thing you need to know is how to measure alkalinity. Alkalinity is sometimes called carbonate hardness and is the amount of carbonates and bi-carbonates present in the water. Tetra and Aquarium Pharmaceuticals both make Carbonate Hardness test kits that measures alkalinity (the boxes have a big KH on the front). Alkalinity/Carbonate Hardness is not the same as hardness. Normal hardness is the measure of the amount of calcium and magnesium present in the water. Hardness is important if you are concerned about deposits on your pipes and dishes, but it is not what regulates the pH of your water. Some water test kits even mention the importance of alkalinity but the kit itself only measures hardness. Make sure that you are measuring alkalinity and not hardness. If you're not sure what your test measures try this: take a measurement; add some baking soda; measure again. If you don't see an increase, your test kit isn't measuring the right thing.

If after you check your alkalinity you find that you need more, use the following formula to figure out how much baking soda to add. Multiply the number of gallons to treat times the amount you want to raise your alkalinity (in ppm) and divide by 5000 to get the number of

ounces of baking soda to add. For example, if you want to raise the alkalinity of a 1500 gallon pond by 50ppm, you need 1500 x 50 / 5000 = 15ounces.