Obtaining Great Water Quality Starts With Your Philosophy
By Jan Schreier

So what does water quality have to do with Plato or Aristotle? I've gotten no less than six "emergency" calls in the past two weeks bemoaning problems with maintaining the pond. From "We're fed up and ready to turn this pond into a _____ [pick one: pondless feature, rock garden, landfill]" to "My fish are gasping for air in pea-soup". Figuring out what to do about it starts by asking more questions, but not just about "what and how much do you feed your fish?" or "when was the last time you did a water exchange?" Just read the responses from the Ponders Ponder section on what some of our members do about algae, and the response runs the gamut. Why? Because, as the University of Minnesota trains you to say when educating you to be a master garden "it depends". How you go about keeping your pond clean and to your liking really depends on a lot of factors, including your expectations on what constitutes "clean" water and "low maintenance". Whether you lean closer to a tree-hugging-only-natural-products-ecological-maniac or tend towards the blast-them-off-the-face-of-the-earth-so-I-can-have-sparkling-clean-rocks-and-water mentality, will dictate your approach to water quality. Not that any of us would are actually on either end of these extremes, but I bet you all know someone who comes pretty close.

I personally fall under a primary philosophy of **The Lazy Gardener**: Do the minimal amount of work to get something nice, but not perfect. I like trying to get ponds into balance to work on their own, so all I need to do is sit back & enjoy them without frittering about wondering if I've added the right amount of this or that this week, and what happens when I go on vacation for a week or (gasp!) two. I'm also very respectful of the environment, and will always favor products which do least amount of ecological disruption. So, having said that, I almost always advise clients to STOP using algaecides and flocculants. Why? Because the chemicals used, destroy the balance of the pond. At best, it kills the beneficial bacteria and one needs to add a whole bunch more a day or two after the algaecide, at worst, the dead algae completely overwhelms any filtration that may have been going on shutting down the entire system. The net result is you either keep adding alternating products (algaecide followed by bacteria) at an ever increasing rate, or you go through a 2-3 week swing. Kill all the algae, pond looks great; Filter shuts down; 2-3 weeks later, new algae blooms with more of a vengeance off all the excess nutrients. To me, that sounds like a lot of work and critical timing, which just takes too much futzing around.

Keeping the pond balanced and healthy without a lot of intervention takes a few things: experimentation and patience. You must be patient enough to allow whatever intervention you DID try to work. Then, what worked last year, might not work this year because: your fish grew, the pond is dirtier, plants are more mature, the shade is more/less, weather is hotter/cooler/sunnier/wetter/drier this year… You get the picture.

So getting rid of algae, and keeping the pond clear & balanced is always a multifaceted problem which, I believe, can be solved fairly easily, if you know about the most common mistakes that people make. Here are the best adjustments people can do to make their water quality significantly improved with very little work. Brought to you by your self-professed **Lazy Gardener**.

#1. Put your fish on a diet. People LOVE feeding their fish. Feeding fish help them grow healthy & fast, plus you get to see them better as they come to the surface to feed. Remember to feed your fish based upon water temperature. Peak feeding (up to 2-3 times per day – NO MORE than they completely consume in 5 minutes) occurs when water temperatures are 70-75F. Many of you know

not to feed your fish when the water temp falls below 50F, but do you also know to not feed your fish when the water temp is ABOVE 90F? Our pond fish are basically cold-water carp. They get stressed in hot temperatures; oxygen saturation is less in warmer temperatures. Who amongst us likes to eat a big hefty meal when its 95 degrees outside, 95% humidity, and there's no air conditioning? As the water temp climbs to 80 & above, cut back on the food. Once per day, then 2-3 times per week, then once per week, and stop feeding when temps are at 90F or above. Or, be like me, and don't feed them at all. Let them find the bugs, algae and other things that find their own way into the pond, and they'll help you keep your pond clean. If you find that the fish haven't figured out what the food is, and tend to be skiddish about it, then make a **Feeding Ring**. Take a piece of plastic tubing, and join the two ends with tape or a piece of dowl stick. Float the ring in the water, and place the ring in the water only when you feed them. Soon, they will figure out: Ring=Food. And with the ring, all that food won't go floating away into the skimmer.

#2 Let your Babies Go. Many of your fish have been spawning, and growing. Don't be afraid to be generous and give away some of those fish to great MWGS members just starting out. Besides, you can use that opportunity to keep all the "pretty" fish. For small ponds (500-2,000 gallons) a quick rule of thumb is one inch of fish for every 10 gallons of water. A 1,000 gallon pond therefore should support 10 fish that are 10 inches long (including the tail!), or 20 smaller goldfish that are 5 inches long. If you have an overstocked pond, you will need to overcompensate by installing much bigger, and better filtration. Plus, your koi can more than double in size in one season, so either plan for growth, or plan for give-aways.

#3 Turn Sun Sun Sun to Sun Shade Shade. We all know that ponds in full sun have more difficulty keeping algae at bay than those in partial or full shade. So, find ways to make the sun less of an issue. How? Plant nearby trees, construct a pergola, or cover the surface of your pond with pond plants! Try to get 2/3 of the surface of you pond sheltered from the sun. Water lily pads are an excellent choice, but also those quickly-multiplying floating plants like Water Hyacinths and Water Lettuce. Use the same "floating ring" technique to keep your floating plants out of the skimmer, or tie some fishing line to some rocks on the shore, and float them within the fishing line loop, or place a cheap piece of bamboo across the inside lip of the biofalls about 6 inches from where the water flows over the edge, and place the floating plants behind it. In good conditions, floating plants can double in quantity every 12 days, so it's a much quicker way of getting shade than waiting for the lilies or trees to get going. Besides, floating plants get 100% of their nutrients directly out of the water which happens to be the same place that the algae uses and guess who wins? Which brings me to another point:

#4 Plants, Plants, Plants. There's a reason it's called a Water **Garden**. The more mature your plants are, the more marginal bog plants that are grown directly in the pond rocks, the more they will shade the pond, and take nutrients out of the water. Use underwater plants (anachris, hornwort, cambomba), floating plants (water hyacinths, water lettuce, azolla, salvinia, duckweed), plants with floating leaves (water lilies, snowflake, floating heart), marginal plants grown directly in the rocks (water celery, sweetflag iris, arrowhead, bog bean, aquatic mint, water poppy) to name a few of my favorite and reliable growers.

#5 Make Moving Water Work for You. Moving water in the pond does several things: If it breaks the surface tension of the water, as with a fountain or waterfall, it increases oxygen saturation of the water. It also allows good aerobic bacteria to grow, colonize and come in contact with more water. Read the directions of any pond bacteria, barley straw or activated carbon, and they will all say that they work more effectively when placed in moving water. So if you are adding any of these to the pond, don't shove them in a still corner of the pond on the bottom, put them in a biofalls, stream or water that's moving. If you're struggling with "dead" areas of the pond where there is very little water movement, then try adding a small bubbler or fountain for that end.

#6 Drastically increase the surface area where the bacteria live. Bacteria are sedentary, clinging to rocks and pond bottoms. Find things that add surface area and put them in the pond in where it will come in contact with as much water as possible. ANYthing that increases surface area. Lava rocks are more porous than river rock, which is why many people put lava rocks in their biofalls. Anything natural or man-made that has a lot of surface area works well (as long as it doesn't decompose in the pond, or give off toxic byproducts). Fibrous mats, bioballs, biobeads, pea gravel, you name it. Think about it, get creative. Oh, and while we're mentioning bacteria…

#7 Stop killing the good bacteria! What kills the good bacteria? Chlorine from water exchanges, algaecide, flocculants, UV filters, lack of oxygen are all potential sources. But often, people try to be too "clean". They regularly hose off (with their nice chlorinated city water) the biofalls mats and lava rocks every time they clean out the skimmer basket. All they're doing then, is killing all the good bacteria on their **biological** filter. Give the bacteria a chance to colonize, grow & multiply. Read the label on MicrobeLift, and it tells you wait 18-25 days to see results. (Yes, that's 3 weeks!) If you're washing off the surfaces where this bacteria lives in a shorter time period than every 3 weeks, you're defeating the whole purpose of using it.

#8 Be Patient and Stop Futzing. When you try something, give it a good 2-3 weeks before you declare it a failure. Bails of barley straw work great, but guess what? Barley straw works because it is during the process of decomposition that gives off the chemicals which combat the algae. That decomposition takes 3 weeks to get going. Seeding the pond with bacteria usually take 1-3 weeks to colonize in enough quantities, and take enough nutrients out of the water to actually see the difference.

#9 Eliminate Sources of Nutrient Loads. Many people mulch right up to the edge of the pond. Over time, the pond settles, but every year, we add more mulch. Pretty soon, mulch is falling into the pond, or every time it rains, all the run-off sweeps through the fertilized grass, or through the mulch right into the pond. Make sure the edge of the pond (including where the liner edge goes) is always above the natural run-off of the yard. Try berming up the edge of the pond. Add a buffer edge of river rock between the mulch and the pond. Dig a trench just before the edge of the pond so that run-off actually runs **off** and not **in** the pond.

#10 Take Drastic Action only in Drastic Emergencies. OK, so you can't wait 2-3 weeks because the pond is as thick as pea soup and the fish are dying. Don't feed them anything regardless of the water temperature. Do up to 33% water exchange every day for a week (with the requisite dechlorinator if using city water). Add aeration immediately. Add non-iodized salt at a rate of 1-2 lbs per 100 gallons of water (which helps the fish with stress). [Note: 1 lb. of salt added to 100 gallons of water makes the salinity 0.12% This rate is good for fish, and not too harmful for plants. Once the salinity of the water is above 0.15%, some pond plants become affected. Salinity above 0.3% will kill or sicken most pond plants, so remove your sensitive plants when you do this. As you complete more water exchanges, don't add more salt, which will gradually decrease the salinity.] Add underwater and floating plants immediately. Physically remove string algae and decaying plant material. If there is a high concentration of ammonia, add activated carbon or UV filter. Once the fish stop dying or displaying stress behaviors (gasping at the surface), then you can start the other things like adding bacteria, surface area and the other ideas above.

So now that I've discussed generalities, its time to share what I do for our own ponds and water features.

The Lazy Gardener Way:
- ✓ We have a pondless fountain near our front door. It is concrete statuary with rocks that have no plants or fish living in it, but it is well used by the dog to take a drink, and for some reason I have yet to determine, it happens to be the favorite water feature for our local hummingbirds. For this, we use chlorine bleach. Cheap, effective, and in small quantities: not particularly toxic. I figure we add the equivalent of ¼ cup of bleach to 100 gallons of water. Within 2 hours, the green is completely gone, and within a day, the majority of the chlorine is dissipated. We repeat this whenever the rocks turn green again. Now in the heat of June, that's about once every 2 weeks or so.
- ✓ We have a small bog garden which we refer to as our "bird pond". It has very low flow, using a 500 gph pump, and even though it is 2 feet deep, it is filled with pea gravel, planted with plants, and the visible water above the pea gravel is only 2 inches deep. It is the birds' favorite place to bath & drink all year around. For this pond, I don't do much of anything. It is well planted with bog plants, and there are only a few times I need to take action: When the birch tree catkins drop; When the Hawthorn Tree drops its berries; When the fall leaves gather. Since it's a small feature, I just pull out the gunk manually. String algae will sometimes develop, which gets pulled out every 2 weeks or so during the really warm months. But the water is crystal clear, and everything is in balance.
- ✓ We have our "main" pond in the back yard, which is a standard skimmer/biofalls system with about 30 fish. It used to be in full sun, but now that the trees have gown, it is in most shade. We do one spring cleaning, completely draining the pond, hosing off the rocks, spraying hydrogen peroxide on the algae, and refilling the pond. I seed the pond with bacteria (starting with Aquascape Aquaclearer Extreme). I don't do the recommended direction of "every day for 2 weeks", but will give it a good double the initial dose once all the chorine has dissipated from the spring-cleaning. We add our underwater plants and wait. When we start to get string algae, I'll turn off the waterfall, spray the string algae on the waterfall directly with hydrogen peroxide, let it foam up like it does on cuts for 15-20 minutes, and turn the waterfall back on. Then I'll follow-up with an initial dose of Aquascape SAB Extreme. If you add it correctly, by using pond water to dissolve the granular formula, and adding the slurry all the way around the pond, the entire pond should turn a milky white. This will dissipate within 24 hours, and the pond will be clear, and the string algae gone. That's it. I repeat the SAB Extreme only when I have the string algae problem, which in my now well-planted and shady pond has been once this year, and I suspect I will do it once more before the end of June. I'm not in the habit of recommending products, but I've not found anything that works that well, that quickly, in the pond. Hydrogen Peroxide, straight out of the bottle that you find at any pharmacy (under $1 for a quart at Target), is the Lazy Gardener's solution to barley straw. One of the many chemicals that barley straw gives off as it decomposes, is hydrogen peroxide, so why wait 3 weeks? It doesn't work below water (too dilute) but even above water, at the dilution that it becomes by the time you turn the waterfall back on, it is completely harmless to fish & other wildlife that visits the pond.

So, aside from the spring cleaning, and the one application of Hydrogen Peroxide/SAB Extreme, I have cleaned out the skimmer basket about 4 times this year. That's 3 hours for spring cleaning and then approximately a total of 15 minutes for all other pond maintenance activities to date. The pond looks fantastic. Now, the rest of my perennial garden needs: watering, pruning, fertilizing, weeding, and more mulch. Maybe I should convert the entire back yard into one big pond. But that's another story.