



**You take care of the water and the koi will take care of themselves...
You can't heal fish in a toilet...**

95 % of all koi health problems can be traced back to problems with water quality...

When I started the hobby I spent the majority of my time testing water and incessantly adjusting *everything* toward perfection. Know what? My fish paid the consequences. They became ill and some died from my over exuberance. In an earlier article, I talked about:

“Benign neglect” and noted our job is to “house, feed and change their linen ever so often.” (Biggio, 2007)

The same holds for water quality. More is not always better. Here our job is to:

Periodically test, spot trends and correct water quality problems.

This month we expand on Joe’s Water Quality article.

Spotting trends: How do you do that? You record your tests so you can identify parameters that are changing up or down. As Joe said ‘*koi don’t do well with change*’. The reason has to do with stress and the “General Adaptive Syndrome”. So, if a parameter is outside its diurnal (morning to night and night to day) readings or consistently moving in one direction or the other, that parameter is **trending** in that direction. Here is an example of a simple form you can use to track your test results:

Pond:	[Type Pond ID...]			Frequency	Daily Weekly Monthly
	<i>Test</i>				
	Acid/Base Balance	Ammonia	Nitrite	Alkalinity	
Date	7.0 – 8.5 pH pts	0 ppm	0 ppm	0 - 200 ppm (100 ppm ideal)	Ideal Range

This leads us to the **frequency of testing**. There are probably as many opinions about the frequency of testing as there are koi keepers. Joe mentioned weekly testing, some of the literature says daily and the KHA program says monthly. So what’s right? Actually they all are. The KHA program teaches that **for the average koi keeper with an established pond monthly testing is adequate**. But it also notes that this isn’t always true and there are times when you need to test more often.

New ponds with uncycled filter or old ponds with a new uncycled filter

You need to check water quality daily until nitrates start showing and **no** ammonia or nitrites are registering.

New ponds with cycled filter

Until new pond stabilizes and readings of major parameters stay stable you should test weekly. (I have been unable to find any definition of the period of time during which a pond is considered new, but my personal opinion is 6 months is probably intended). (Meck, 2004):

Personally, I check Ammonia and nitrite monthly and for pH and KH, I test:

Weekly during spring and summer and
Monthly during fall and winter

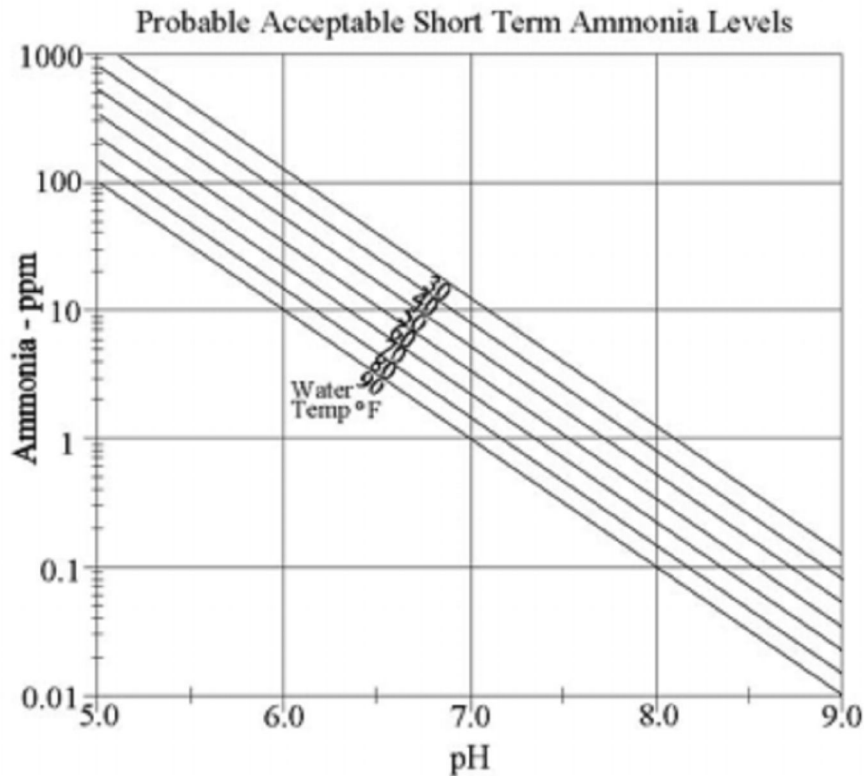
As with everything you must exercise judgment and common sense and do more frequent testing as events unfold. A good example is after a **pH Crash**:

Test acid/base balance, alkalinity and ammonia daily for the next several weeks. (Since several is more than 2 or 3 let's say about a month).

Test nitrite weekly for next two months. (Roark, 2000)

So what do you need to test? Again opinions are all over the place. The KHA program thinks the average pond owner can get by just testing **acid/base balance, ammonia and nitrite**, but recommends **alkalinity**; and, if adding salt, salinity. Any other tests are considered 'nice to have but not essential.' (Meck, 2004) Joe suggested replacing tests every year. A good way to do this is to write the purchase date on the kit and buy new reagents 1 year later. He also noted that pH reagents normally last 2 years. Alkalinity also lasts two years. (Meck, 2004)

Water itself is a very complex molecule (http://en.wikipedia.org/wiki/Water_%28molecule%29) and that makes water quality complex.. All these parameters are **interrelated and interdependent**. Mess with one and you could possibly change one or more of the other parameters. I've been asked a number of times about the interrelationship between Ammonia (<http://en.wikipedia.org/wiki/Ammonia>), pH ("power of hydrogen" -- <http://en.wikipedia.org/wiki/PH>) and temperature (<http://en.wikipedia.org/wiki/Temperature>). Here is a chart that shows the **probable acceptable** short-term ammonia levels.



$$NH_3 = \frac{\text{Total Ammonia}}{(1 + 10^{[(0.0902 - \text{pH}) + (2730 / (273.2 + \text{Temperature}))])}}$$

(After Meck, 2004)

How to use the graph:

- Find where pH crosses the temp line in the table, and then read the ammonia level for that point.
- Any Ammonia reading at or above that point is toxic, requiring **immediate** action

Any Ammonia reading below that point is survivable if corrected **within 1-3 days**. (Meck, 2004)

Note: In the presence of chemicals that detoxify ammonia, only Nessler kits read incorrectly and are the reason why we suggest the use of a salicylate-based test kit. (Nessler kits use colorimetrics that change from clear to yellow or yellow

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orange, while salicylate-based kits use colorimetrics that change from light yellow to bluish-green).

Warning: If your replacement water has a higher pH, contains ammonia or chloramines, then you may be making the problem worse if your replacement water isn't treated first.

To correct the ammonia levels in your pond do the following:

(after Meck, 2004)

pH	Established pond	New bio-converter / pond
	Increase aeration, adding supplemental air if possible	
	Stop Feeding for one week	Feed half rations for one week
	Check bio-converter for cleaning and clean as needed	Discontinue UV, ozone generators and foam fractionators
Below toxic	10 % Water Change	Chemically treat for 2 times ammonia detected (I use Amquel +)
At toxic	25 % water change	
Any line above toxic	Move any surviving koi	
	Retest ammonia in 12 to 24 hrs and repeat above steps as needed.	

Whenever 0.25 ppm or more of nitrite is detected do the following:

(After Meck, 2004)

Nitrite	Established pond	New bio-converter / pond
	Increase aeration, adding supplemental air if possible	
	Stop Feeding for one week	Feed half rations for a week
	Discontinue UV, ozone generators and foam fractionators	
Less than 1 ppm	10 % Water Change	Add 1 lb salt / 100 gallons and maintain at 0.1 %
For all higher	Add supplemental aeration	
Between 1-2 ppm	25 % water change	Add 2 lb salt / 100 gallons and maintain at 0.2 %
Greater 2 ppm	50 % water change	Add 3 lb salt / 100 gallons and maintain at 0.3 %
	Retest nitrite in 24 hrs and repeat above steps as needed	

Technically, there should be 6 ppm of chloride ion present for every 1 ppm of nitrite ion to prevent toxicity So you would add 3 ml of salt / 100 gal for each 1 ppm of nitrite. (It takes 1.67 ppm of sodium chloride to equal 1 ppm of the chloride ion, so, you would need to add 10 ppm of salt for every 1 ppm of nitrite that is present.)

Next month we'll continue the series on water quality with the inter-relationships between alkalinity, hardness and pH and how to recover from the **dreaded pH Crash.**

Harold Biggio
Certified Advanced KHA

Sources:

Biggio, Harold. *Koi CPR – Ulcers*. Newsletter: Atlanta Koi Club, Vol. 19, No 6, 2007.
 Meck, Norm. *Pond Water Chemistry*. The KHA: Course Sections. AKCA, Rev. 2001.
 Roark. *Water Quality*. Roark's Experimental Puddle. Ventura, Calif. 2000

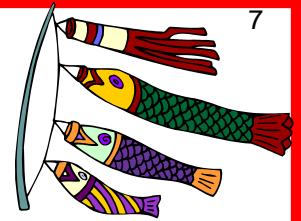
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Atlanta Koi and Goldfish Show – 2008



This year's show was a large success, and to the volunteers who helped, we thank you! We want 2008 to be a success as well, and as such, we have already begun the planning.

Here's a brief understanding of how we put together the show. The Core Show Committee consists of a small group of club members who will each handle a particular area of the show. We will introduce ourselves and let you know our plans as the year progresses. Be sure to read each edition of the newsletter. We do really want this to be the club event of next year and you are invited to help! Our first mission is to gather ideas and suggestions.

As an example, what you have seen at our show or others that you liked, hated or wished to see. All comments are welcome and discussed. Below are a few questions to get you started:

- Do you have ideas on how to improve the show?
- Do you know how we get more publicity in local papers like the Marietta Journal, Creative Loafing, etc...example: I found an entire list at http://dir.yahoo.com/Regional/U_S_States/Georgia/Metropolitan_Areas/Atlanta_Metro/News_and_Media/Newspapers?skw=newspapers+atlanta+metro
- Do you know any artisans that might want to exhibit at the show, our rate of \$200 per booth is very reasonable and folks spend money at these shows? The artisans do not need to be related to koi or goldfish hobbyists.

To submit your input or just ask show related questions, we have an email address to koishow@atlantakoiclub.org

And please, if you would like to volunteer, but unsure of how to go about it, let us know. We'll help find something that you will enjoy doing, and if you'd like to learn, we're happy to buddy you up with someone.

We are hoping to see many of the same old faces, but just as important we hope to see many new faces as well!

David Pugh

(Continued from page 2)

You could buy a fish from \$5.00 to \$5,000.00, a cornucopia of nishikigoi, longfin and goldfish.

With a show as large as this there is sure to be some glitches. Due to an overbooked hall the banquet was bumped and was quickly relocated within easy walking distance of the show site at a horse arena. The dirt floor didn't phase anyone when they arrived and were met with an delicious array of hors d'oeuvres and, yes a bar. The buffet dinner was so fine and finished off with decadent desserts. The trophy table had me wishing I had been able to bring fish with me. Presentations started off with gifts for the hard working volunteers who made the show happen, and for the judges. The goldfish trophy for Grand Champion went to AKC's own Gaye Langley-Jones for her impressive Ranchu, a repeat win from our show. Gaye also gathered up Reserve Baby Grand Champion. Ron Mintz of Florida took home top honors in koi with a size 7 Kohaku awarded Supreme Grand Champion and Gin Rin "A" size 6 receiving Grand Champion "B".

Having made spur of the moment plans Gaye & I were unable to stay and enjoy the show on Sunday. We had to head home to Atlanta. It will be sometime before we will again be able to experience the big show. This because next spring the swallows will return to Capistrano, but it will be 2 years before Koi America returns to the east coast.

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Treasurer's Report

Ron Scott



Meeting Minutes for 14 October 2007

Beginning balance:		\$2,695.27
Club Store		\$750.00
Koi Show		\$7,746.00
Koi Auction		\$371.25
Misc.		\$42.00
Raffles - Monthly Meetings Only	\$42.00	
Membership		\$834.00
Member Badges	\$60.00	
Membership Dues	\$524.00	
Koi USA Subscription	\$100.00	
Vendor Sponsorship	\$150.00	
Total Income		\$9,743.25
Club Store		\$282.63
Electrical Cords	\$249.77	
Filling of Air Bottle	\$32.86	
Flower Show		
Insurance		
Koi Show		\$6,577.61
Misc.		\$150.00
Food at Club Meeting	\$150.00	
Newsletter		\$33.79
Pond Tour		
Membership		\$20.00
Koi USA Subscription	\$20.00	
Total Expenses		\$7,064.03
		\$2,679.22
Checkbook Ending Balance		\$5,374.49
Uncleared Transactions		\$1,173.69
Bank Statement		\$6,548.18

Executive members present were: David Boyd, Ron Scott, Herve Rijnveld, David Marier and Peggy Fricke.

Club President David Boyd called the meeting to order.

David Pugh then updated the club on the lessons learned from the 2007 Koi Show. Additionally, David, the 2008 Co-Chairperson, discussed some suggestions for the 2008 show. He proposed a new floor plan due to a change of floor space at Coastal. David asked for thoughts and suggestions. After much discussion from the membership David took all the suggestions and will present a new floor plan at a future meeting.


Susan Brown presented a request from a parent for assistance from the club in helping to clean up and repair the Koi pond at Children's Healthcare of Atlanta at Scottish Rite. After discussion the club voted to form a committee (David Pugh, David Boyd and Mike Roach) to investigate the condition of the pond and report back to the club of its findings and possible solutions.

Hal Brown, Nominating Committee Chairperson then called for the election of the new officers. The nominees were Michael Anderson, Gary Lee and Steve Castel for Vice President and Robin Smith and Steve Castel for Treasurer.

With a quorum of both officers and members the club voted. All the votes were counted and verified and our new Vice President is Michael Anderson and our new Treasurer is Steve Castel.

CONGRADULATIONS!! Michael and Steve!

The Meeting concluded and the club enjoyed good food and drink and Harvey's wonderful backyard and beautiful pond.
Peggy Fricke, Secretary



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