



# JAN / FEB 2009 NEWSLETTER

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[www.louisvillekoiclub.com](http://www.louisvillekoiclub.com)

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## UPCOMING EVENTS

### Feb. 12th - 1st Meeting of 2009

Nunnlea House  
1940 S. Hurstbourn Pkwy  
6:30 Refreshments  
7:00 Meeting

### March 5th - Meeting

Nunnlea House  
1940 S. Hurstbourn Pkwy  
6:30 Refreshments  
7:00 Meeting

## MEETING IS FEB 12TH

**Thursday, Feb 12** is the first meeting of the year. At this meeting we will determine the agenda and dates for this year. Your input in the decisions is requested to plan a successful and eventful year. If your not able to attend the meeting, please feel free to contact any officer with your thoughts or ideas. Also at this meeting, we will show a slide show presentation on a mud pond project that a few of the members were involved in this past year. We will also be discussing the idea of having our first grow out koi competition. We also welcome everyone's suggestions and comments.

**March Meeting Note:** Because of several officers not being able to attend the regular scheduled meeting date, the March meeting will be held on Thursday, March 5th.

## PRESIDENT'S MESSAGE

I would like to first start off by Thanking Tom Gladney for doing such a great job for all the years he was President of our club. He has done an excellent job and I can only hope to follow in his footsteps. I'm sure we can carry on the momentum that GLK&GS has gained over the last few years and continue the traditions and maybe create some new ones.

I hope to see many of you at our first meeting. I'm sure, like me, you are looking for a reason or chance to get out of the house and get rid of some of that "Cabin Fever". I look forward to what should be another great year for our club and members and hope I can count on your support just as you have given in the past.

*Happy Koi Keeping!*  
*Troy*

# Share Your Passion

by Rick and Janis Buss

My wife and I live in Illinois in a very small town called Chebanse. We have been keeping koi for about 15 years. Two years ago we had our first real koi spawn and raised some of the fry. Our pond is not a large pond, only 12' x 12' x 40", we are planning to enlarge it one of these days, maybe this will be the year. We have a varied mix of koi, probably like most backyard ponds go. If we ever get into showing koi that may change but for now its a mix.

My favorite koi in our pond is a Gin Rin Asagi, and Janis has a favorite showa. With living here in the northern climate and our pond on the small side, our koi are not of the large size you can see at some of the shows, but that is OK with us. I do keep most of the koi outdoors all year long and therefore none of them get to eat year round.

We have been going to Louisville for "animal" shows for 25 years. First with show pigeons and then with koi. (Fin, feathers and fur kind of people as we have dogs also)

Four years ago I found myself going to the Koi show in Louisville, and the next year Janis and I joined the club. We love the people so much we wanted to be closer and felt that was the best way.



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## LITTLE KOI - BIG KOI

Over the last year, we have shown how patterns in koi change as they become older. In this month's example, let's look at pattern size compared to the size of the koi. The three koi below are all approximately 8 inches in length. At first glance, koi A & B seem to have a well balanced pattern while koi C seems to have too heavy of a pattern. This is true in an 8 inch koi but you will see what happens as the koi grow shown elsewhere in this newsletter.

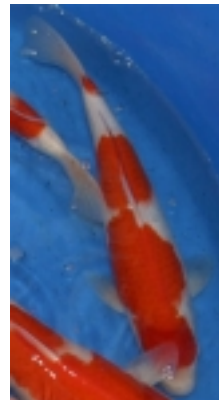
**A**



**B**



**C**



# About GLK&GS and AKCA

The Louisville Koi & Goldfish Club was founded in 1984. The Louisville club is a chapter of the A.K.C.A. The Associated Koi Clubs of America (A.K.C.A.) is the parent organization of all the associated clubs. Each club pays dues of \$100.00 a year for membership and insurance.

The A.K.C.A. has its own Judging program with a total of thirty judges. Each judge may be asked to judge from two to four shows a year. A.K.C.A. has a seminar each year hosted by one of the member clubs and held in a different location every year. There are 104 North American clubs associated with A.K.C.A.

Just as this newsletter is GLK&GS's publication, the A.K.C.A. has a national magazine called Koi USA. The magazine is separate from A.K.C.A. but owned by A.K.C.A.. Koi USA, is a bi-monthly full color magazine that is approximately 120 pages for only \$20.00 annually (for club members). Many of the hobbyists in our club, have learned a great deal from this magazine. We certainly would recommend any of our members to subscribe. For more information, contact [www.koiusa.com](http://www.koiusa.com) or 1-888-660-2073.



REALLY **BIG** KOI!



These photos were taken after the fall harvest in Japan. What are they feeding these things?

## LITTLE KOI - BIG KOI (part 2)

Now we have a chance to see what these same three koi look like at approximately 20 inches. As you can see, it is apparent that koi A & B have completely outgrown their pattern while koi C has grown into its pattern. When purchasing tosai (one year old koi), always look for koi with a heavy pattern that they will grow into in time.



Thanks to Meganne Powell for photos.

## Cold Water Koi Keeping

(continued)

For many years, Cheerios was recommended if the owner had to feed the fish something (guilt complex) and the reason for using Cheerios is that it was very low (like zero) in protein. But as we have learned, Cheerios is high in carbohydrates and as such, are not good for fish in cold water conditions where they cannot burn off the carbohydrates effectively. A lower protein fish food is a much better choice for cold water feeding IF it must be done at all. Another thing to consider regarding feeding is that owners should NOT “pack it on” during the fall as the fish’s natural storage and processing systems provide for sufficient nutrition all winter long. Keep in mind the fish are not in torpor and so their processing nutrition requirements are minimal during cold water times.

At 50 degrees F, stop feeding the fish altogether. At this point the fish’s much lower metabolism will not allow proper processing of food in the gut. Koi, unlike most animals, do not have stomachs and so all food is processed in the gut. With a slower metabolism, the food moves through the gut slower and the body’s need for nutrients is reduced as well, so the net effect is that the food is not processed properly. If overfeeding during cold weather occurs, there is a real chance that the food will spoil in the gut and cause significant damage to the fish intestinal tract and quite possibly kill the fish.

And finally, at 40 degrees F, all nitrobacter activity in the pond ceases if the filters are not running. If the owner plans on shutting down their filters for the winter, this is a good time to do it. When the pond owner actually shuts down the pumps and filters is a call only the owner can make, but the overriding concern is freezing of the plumbing and the loss of a pump, filter, or worse yet - the draining of the pond from a ruptured water line.

### Cold Water Ammonia and Nitrites

Now that we understand what happens when pond water temperatures drop to 50 degrees Fahrenheit and below, we are all too aware that the biological nitrification processes have ceased to be effective against ammonia and nitrite build-ups in ponds without filters running. So, let’s look a little deeper at the effects of ammonia and nitrite on our fish during the cold-water months.

First ammonia: in numerous articles and publications, we have read that ammonia is much more toxic in high pH (alkaline) water and since this is true, we must always balance our ammonia readings with the pH readings of the water to get a better picture of the extent of the effect on our fish. However, it is also very important to point out that water temperature has a profound effect on the toxicity of ammonia as well. In order to understand the effect of water temperature and pH on the toxicity of ammonia, let’s take a look at how we need to interpret ammonia testing.

Most commercial kits for ammonia testing provide readings for what is called Total Ammonia Nitrogen or TAN. If you read the labels and instructions on your test kit, chances are you will see where the manufacturer uses the term “NH<sub>3</sub>/NH<sub>4</sub>” as the “ammonia” the test kit is capable of reading. The term “NH<sub>3</sub>/NH<sub>4</sub>” is Total Ammonia Nitrogen. So, let’s take apart this “Total Ammonia Nitrogen” and see what we are actually dealing with.

Ammonia in water occurs in two different forms: **Ionized Ammonia** which is represented as NH<sub>4</sub> and **Unionized Ammonia (UIA)** which we see as NH<sub>3</sub>. The combination of NH<sub>4</sub> and NH<sub>3</sub> are what is termed **Total Ammonia Nitrogen (TAN)**. The average pondkeeper’s test kit cannot differentiate between NH<sub>4</sub> and NH<sub>3</sub> readings and so the TAN number is provided. But it is the Unionized Ammonia (NH<sub>3</sub>) that is the only ammonia form that is toxic to fish. And it is **both** water temperature and pH levels that will determine which form of ammonia is predominant in the water at any given time.

The toxicity of UIA begins at levels as low as 0.05 mg/l and so determining the UIA level from inside a TAN reading can be a valuable exercise for pond keepers. UIA levels of 2.0 mg/l are the levels where fish begin to die off quickly. As stated, both water temperature and pH levels impact the toxicity of UIA and so when TAN tests are performed, it is important to read to both the water temperature and pH levels as well in order to complete the picture.

The effect of increased pH at a constant water temperature and constant TAN reading yield dramatic differences in UIA levels, with the increased pH resulting in greater toxicity of the UIA. This is the basis of the argument that higher pH readings make ammonia levels more toxic.

Next, compare the UIA level for a water temperature of 50 deg F. at a pH reading of 8 (0.0091 mg/l) and the UIA level for a water temperature of 86 deg F also at a pH of 8 (.03715). Here it is easy to see the impact of water temperature on UIA levels with constant pH and TAN readings with the cooler water offering more protection against UIA toxicity.

Now nitrites: unlike ammonia, which has an immediate toxic effect on fish, nitrite problems are caused by an accumulation of nitrites over a period of time. Nitrites basically replace the O2 levels in the blood thus causing "brown blood syndrome" and eventual death to the fish through extreme O2 deprivation. So, it takes some time for koi to accumulate enough nitrites to cause serious problems. How much time? That depends on a number of critical factors including nitrite levels in the water, the chloride levels of pond water, and the metabolism of the fish. In colder water (50 deg F and under) we know that the fish's metabolism slows significantly and one of the results is that the respiration will be less. Also, since the conversion of ammonia to nitrites stopped before the conversion of nitrites to nitrates, chances are the nitrite levels are exceptionally low and approaching zero. This results in a decreased opportunity to take up nitrites from the water. However, lethal levels of nitrites can still be accumulated over time if the nitrite problem is not addressed.

For most ponders facing nitrite levels during cold water periods, salt is the best treatment as salt levels of only .1% will inhibit the uptake of nitrites and prevent brown-blood syndrome. And salt levels of .1% can be maintained for indefinite periods of time without a risk to the fish or concern for developing salt resistant parasites.

## **Water Quality**

One of the major points we need to make to pond owners is to check water quality over the winter months routinely as this can tell them how the pond is doing and what needs to be done to head off or fix problems. This should happen whether the filter is running or not. Here are some key points to water quality in winter:

1. Expect levels of ammonia in the water. Even though the fish are not eating, ammonia is being produced by respiration and with no biological activity to speak of (unless the filters are running), ammonia will accumulate. However, the cold water makes it less toxic and almost harmless during the winter.
2. Expect low levels of nitrites. Low levels of nitrites will not adversely affect the fish due to low uptake potential. However, if there is concern, raising the salt level to .08 to .1% will protect the fish and not affect the water temperature.
3. Test for KH levels routinely. Photosynthesis and other biologic activity in the pond are depleting the KH levels continually and as such, they will need to be replenished during the winter months.
4. Test the pH often, getting both early morning and late afternoon readings for comparison. The goal is hold the pH stable at whatever level is natural for the pond (assuming the KH levels are correct).
5. ORP readings can quickly tell us the overall condition of the pond and from those readings we can react accordingly, including water changes.
6. Do not be afraid to change water in the dead of winter. Remember that significant evaporation has occurred (especially if there is an ice layer) and the water levels need to be replenished and refreshed. Add the water more slowly than usual to allow for temperature changes and use dechlorinators as needed.
7. Significant thawing and heavy snow will have the same effect on a pond as heavy rain. Typically, snow (like rain) is acidic and can affect the pH of the pond unless the KH levels are properly maintained.
8. Use a good in-water digital water thermometer to keep track of the water temperatures at the bottom of the pond.
9. Aerate and circulate the water to help release the gases in the pond and refresh the water.

to be continued ...