



Koi Ahoy

June

2012

PRESIDENT'S MESSAGE – Jerry Kyle

Last month was one of the more enjoyable meetings I have attended since joining CKC. The KoiUSA magazine editors heard about it and wanted pictures. They want to broaden the scope of the magazine to be more inclusive of AKCA member club activities. They already have the best articles on Koi and aspects of breeding and raising show quality Koi. Health and husbandry items are increasing and now we will see more of what you are doing. Watch for the July--August issue.

This month we are invited back to On Golden Pond. Sue Golden is all about water gardening with unbelievable specimens to see. There are those that believe you should have either a Koi pond or a Plant pond. A combination will work if you know how. Sue knows what plants will work in a Koi pond. The Japanese refer to the Koi as the “Jewels of the garden,” The jewels look even more wondrous in a beautiful setting. This meeting will be worth bringing a friend to show off what we do and what we see as CKC members.

August will be club Annual Koi Auction and Sept will see another new pond we have never been invited to see before. This is exactly why I joined this club. Things are looking good. Again, bring a friend and share the enjoyment.

Inside this Issue

Pres. Message	1
AKCA Report	1
May meeting photos	3
Financials	4
Next Meeting	5
Garry's	
<i>Did you know?</i>	5
Club calendar	9
BoD	10



Camellia Koi Club Report to AKCA, June, 2012 by Jerold Kyle

Last month the CKC enjoyed a Pond Tour / Progressive Dinner with each course of the dinner being served at different ponds. It was an opportunity to invite family and friends to show off what we do. Instead of a usual “Fund” Raiser this was billed as a “Fun” Raiser and as such was highly successful. We did so well we sent pictures to KoiUSA magazine to show what we do. June will see us at a garden Koi Pond with an expert showing us that there are beautiful plants that work well in Koi Ponds if you know what and how to do it. Some members are as much about the setting as about the Koi and we will all learn how to have more beauty than just the Koi. Coming up in July will be all about Koi as we will visit an upscale pond in an upscale community hosted by a Koi keeper who is totally focused on raising Champion Quality Koi. We will see that bloodlines do



Koi Ahoy

June

2012

make a difference. Pond Tours, Garden Ponds that will support Koi, and trophy Koi are reasons our club is seeing new members join us. They represent more new ponds for us to visit. It's nice.

Last month's meeting was a blast. Here is how it ran...

CKC Progressive Pond Tour – and Dining – and Poker Run

- 11:00 Soup by Sharron at Tran's
- Salad By Betty at Carlson's
- Entrés at Cubillo's by Gus (kabobs) and Jose (enchiladas) and Don made Mac & Cheese
- Dessert at Georgia's by Melody



The Tran house was our first stop.



Sharron made a fab clam chowder.



Tran's Pond.



Misc.



Koi Ahoy

June

2012



Carlson's was the second stop on the tour.



Misc.

a



Carlson pond.



Other end of the Duane & Melody's pond..

E ee



Cubillo's house was the third stop with Gus hard at the BBQ.



Demonstrating hand feeding.



Cubillo's pond.



Well satiated we ended the tour at Georgia's house for dessert.



Koi Ahoy

June

2012



Misc.



Sharon called for the winning poker hand



Jerry had the winning hand, and won the fabulous hand blown yard art provided by Betty.



Heh heh Gus was the lowest poker hand, and also was awarded a wonderful work of yard art.



Gus was awarded the Koi Person of the Year statue by out-going awardee, Marilee.

Bring a chair and munchies to share.

12:00 noon Board of Director's Meeting
1:00 General Club Meeting

June 24

Hosted by Sue Golden of Golden Pond
3275 Sierra College Blvd.
Loomis 95650



Financial Report May 2012

Beginning Balance	\$8072.25
Expenses	82.73
Income	85.00 membership
Ending Balance	\$8075.52



Garry's Did You Know?

by Garry Chin

ALKALINITY

This month I would like to expand upon a topic I briefly covered in previous Did You Know about Hardness, pH and that is Alkalinity.

So What is Alkalinity? Where does it come from? Why is Alkalinity important?

What is the Best Koi Pond Alkalinity Level?

What is Alkalinity?

Alkalinity, often referred to as "carbonate hardness," or German carbonate hardness, is the measure of carbonate and bicarbonate concentrations in your aquarium water. Alkalinity is a measure of the ability of a solution to neutralize acid without changing the pH. It both controls and maintains water pH. Carbonate hardness is measured in degrees (dKH), parts per million of calcium carbonate (ppm CaCo₃), or milligrams per Liter(mg/L).

Alkalinity is not the same as pH because water does not have to be strongly basic (high pH) to have high alkalinity. Alkalinity is related to the amount of dissolved calcium, magnesium, and other compounds in the water and as such, alkalinity tends to be higher in "harder" water. Alkalinity is naturally decreased over time through bacterial action which produces acidic compounds that combine with and reduce the alkalinity components.

Where does it come from?

We know that pH is the measure of whether water is acidic or basic. A pH below 7 is acidic and a pH above 7 is called basic. The pH of fish blood is about 7.4. The blood comes into close contact with the surrounding water in the fish gills. If the pH of the water is drastically different from the pH of the blood, then the fish has to work very hard to maintain its blood pH. At extreme water pH, the fish is unable to maintain its blood pH and will die. Therefore,



Koi Ahoy

June

2012

the optimum water pH is about 7.4, koi can effectively deal with a water pH of about 6.5 to 9.0, and they quickly die when it is below 5 or above 10. The water coming from our tap varies a little but is usually pH 7.2 to 7.8. That is ideal.

Things start to change once we put water in our fish ponds or tanks. The feed is broken down by the fish and bacteria and one of the major by-products is carbon dioxide (CO₂) liberated into the water by their respiration. The carbon dioxide reacts with the water to form carbonic acid. This could make the water acidic and we would expect the pH to slowly decline as we add feed day after day and the fish and bacteria continue to respire and release carbon dioxide. But, in actual practice, we find that the pH fluctuates from day to night, but changes very little overall from one day to the next. So, where is all that carbonic acid going?

Besides having a desirable pH, our tap water has a desirable amount of alkalinity. Depending on the area, alkalinity in our tap water is generally between 100 and 150 ppm. As we will see, you should worry about low alkalinity when it is below about 50 ppm. At very high alkalinity (200 to 300 ppm) the color of koi does not develop properly. As a general rule, high alkalinity makes beni (red pigments) weak and prone to disappearing all together. However, high alkalinity often makes sumi (black pigments) develop very well. Our alkalinity is in a good range to compromise these two opposing forces.

Alkalinity is also called "buffering capacity". The alkalinity or buffering capacity refers to the water's ability to neutralize acids. As the fish and bacteria respire and release carbon dioxide and the carbon dioxide becomes carbonic acid, the acid is neutralized by the alkalinity. Alkalinity can be thought of as a reserve of bicarbonate. Another familiar type of bicarbonate is those chalky antacids like Tums or Rolaids that we take for heartburn. The bicarbonate neutralizes the acids in our stomachs or our fish ponds. As long as there is a reserve of alkalinity, the pond water pH remains somewhat stable. However, the alkalinity reserve will eventually be depleted. When the alkalinity is depleted there is no longer anything to neutralize the acids being produced and the pH will plummet. The pH can drop to dangerously low levels almost overnight. Some call this a pH "crash". Terrible things happen in a pond during a pH crash. The fish are stressed or killed along with the bacteria in the biofilter.

There are several ways to replenish and maintain alkalinity. In a pH crash emergency, you can add baking soda (also called bicarbonate of soda) which will quickly react with the acids to immediately raise the pH. However, for routine use baking soda is not a good choice. As alkalinity is replenished baking soda also raises the pH higher than we may like. It is not uncommon for the pH to reach 8.4 after adding baking soda to a pond. A better way to slowly replenish alkalinity is to have some oyster shells or clam shells in the system. Oyster shells are composed of calcium carbonate and they can be kept in a filter chamber or anywhere that water flows over them. The oyster shells will slowly dissolve (over years) as acids in the pond water attack the shell. Oyster shells will not raise the pH above that of our tap water yet they will constantly replenish alkalinity. You can use whole shells or the crushed shell sold at feed stores for poultry grit. Most koi keepers replenish alkalinity without realizing it



when they do water changes. The amount of water change required to maintain alkalinity at acceptable levels depends on the feeding rate and fish load, but is generally in the range of 20 to 50% per week.

So, how do you know if you have sufficient alkalinity? Well, you can routinely measure the pH and look for signs of a falling pH and a looming pH crash. Just be careful because when the crash happens it happens fast. A safer approach is to measure the alkalinity directly using a test kit although the alkalinity kits are much more tedious to use than a pH kit or meter. Good brands of alkalinity test kits, like LaMotte and Hach, cost about thirty bucks but Tetra or Aquarium Pharmaceuticals have kits cost about half as much. You can find one in a local pet store. If you have a routine water exchange schedule and a steady feeding rate you will not have to measure alkalinity often. If your alkalinity is still about 100 ppm just before your routine water change, then you have nothing to worry about. If your alkalinity has dropped to 50 ppm before the water exchange then you may want to consider adding oyster shell or changing water more frequently.

Why is Alkalinity Important? ...it can mean the difference between life and death of your koi!

Generally speaking, alkaline conditions are more common than acidic in ponds, especially the newer ones. If the pH remains over 8.5 for any length of time, the koi fish will become stressed or diseased. Here are some helpful examples:

Symptoms

- Lethargic or listless fish due to damaged mucus coating; prone to fungal infection and other disease
- Plants chalky in appearance due to calcium deposits
- Prominence of waste chemicals which harm pond life
- Biological filter loses effectiveness

Reasons

- Introducing fish too soon into a newly constructed pond that was not properly sealed; the lime or alkali from the cement will raise the pH to the top of the scale. Even a shovel full of concrete or mortar can cause serious problems.
- Lime leaching from cement products such as blocks, stepping stones and similar materials over a period of time.
- Lime in stone products subject to erosion
- Excessive growth of algae and plants

Solutions

- If the pond alkalinity is from the koi pond being new, allow adequate time for the pond to age. To speed up this process introduce bacteria found in a koi pond starter solution.
- Institute a partial pond water change to dilute the alkalis
- If high alkalinity is due to an over-abundance of algae, remove excessive growths of thread algae.



- If these steps do not result in a lower pH, use acidifying compounds or pond pH buffers.

What is the Best Koi Pond Alkalinity Level?

Generally levels of 50-170 are what is recommended although some Koi keepers are keeping their pond levels even higher at around 180. The reason for this is that alkalinity will decrease over time as the good bacteria in your pond consume bicarbonates which slowly decrease alkalinity.

In spite of the fact that that a pH of 7.4 is best for Koi fish it can be a good idea to keep the pH level a little higher. pH levels can crash quite quickly when your alkalinity (KH) begins getting lower than 80 ppm. Since alkalinity is the buffer that helps maintain pH it is important to test it regularly. You may find that it's better to keep your Koi pond alkalinity level above 100 or 120 pm. It will give you a bit of a buffer zone to help maintain your pH.

There are several ways that you can add alkalinity to your pond. One way to do this is through water changes. This can help introduce new minerals and can also increase alkalinity. However, if you have softer water it's alkalinity can be less than 80 ppm. You can increase both the pH and KH by adding Arm & Hammer Baking Soda to the water. One third cup of baking soda per 1000 gallons of water will raise the KH level by 25 ppm.

Make sure that you take care not to raise the KH level more than 25 ppm a day. If you do it will cause undue stress to your Koi. An exception to this is if you are losing fish to a pH crash. A pH crash is when the pH level hits 5.5 or lower. In this case you have nothing to lose by adding a bit more baking soda to the water.

Water doesn't have to have a high pH to have high alkalinity. Alkalinity is related to the dissolved amounts of calcium, magnesium and other compounds in the water. This is why alkalinity tends to be higher in hard water as opposed to soft water.

There are various reasons that Koi pond alkalinity level will decrease over time.

Decreases occur naturally over time due to bacterial action which produces acidic compounds which combine with and decrease alkaline components.

Ponds with fiberglass construction or vinyl liners tend to exhibit a higher decrease in alkalinity over time and might need supplementation to help them maintain proper levels. Alkalinity can be raised by adding calcium carbonate, oyster shells, concrete blocks, egg shells or limestone.

High alkalinity can be prevented by routinely changing out the water if the water you are replenishing with has a lower alkalinity than the pond water.

An established pond usually maintains an equilibrium in it's pH value if you keep it clean by removing sludge and any organic materials before they have time to decay. Scheduled water change outs (i.e. 10% / week for small ponds, less for larger ponds) can also help maintain proper pH and Koi pond alkalinity level.



Koi Ahoy

June

2012

Conclusion

I hope this article provides a better understanding of alkalinity, from what it is and how it is measured, to why it is important in Koi ponds. I also hope that it serves to clear up some of the confusion about alkalinity and how it is impacted by carbon dioxide and other acids.

2012 Club Calendar (to date)

Date	Topic	Location
January 20	Winter update	Marilee & Jim's Auburn
February 26	Flora Tropicana	Elk Grove
March 25	High Hand Nursery	Rocklin
April 29	Bay Area Koi Vendor Tour	San Jose
May 20 (3rd Sunday)	Intra-club pond tour, progressive dinner, and poker run	Starts at Tran home
June 24	Golden Pond	Rocklin
July 29	Annual Potluck	Do Home
August 26	Annual Club Koi Auction	Carlson's home
September 30		Haugland home
October 28	Spaghetti cook-off Challenge	Kyle & Flockhart homes
November 18 (3 rd Sunday)	TBD	open
December	Christmas Party 2:00 p.m.	Umeko in Sacramento

If you would like to host your pond and house next year, please let Duane Carlson know. We will be delighted to schedule your convenient month.



Koi Ahoy

June

2012

2011 Board of Directors

President: Jerry Kyle jeroldkyle@yahoo.com	(209) 368-9411	Director: Gary Waldsmith gary@mountaincottagevineyard.com	(916) 933-5501
Vice President: Duane Carlson ducC@surewest.net	(916) 791-7607	Director: Dan Alarid runrdan@frontier.com	(916) 714-1499
Secretary: Marilee Patterson marileemm@att.net	(530) 269-2742	Director: Betty Martin betty@martinracing.com	(530) 320-9410
Treasurer: Georgia Vonk georgiav@earthlink.net	(916) 408-0573	Director: Jose Delgadillo raiders-fan@comcast.net	(916) 683-6446
		Director: Sharon Oswald sharon@mountaincottagevineyard.com	(916) 933-5501
Koi Ahoy Editor Marilee Patterson marileemm@att.net	(530) 269-2742	Webmaster Gus Cubillo acubillo@gmail.com	(916) 956-0598