



PRESIDENT'S MESSAGE – *Jerry Kyle*

Last month we took a tour of some of the Koi Import Dealers in the San Jose Area. It had been seven years since we have done this so was a first for some. Five full vehicles showing up made an impression and discounts were offered and taken advantage of. Some nice Koi came home to local ponds for us to enjoy.

This month travel will be closer to home. In order to not conflict with family activities over the Memorial Holiday weekend our meeting has been moved up a week. May 20th will see a CKC Pond Tour / Progressive Dinner Meeting. We have not done this before in my years with the club and it meets my personal goals of seeing more ponds and eating well. Each course is at a different pond setting. We will start at 11am and eat dessert at 4pm. No ticket to buy. Marilee will honor our new Koi Person of the Year by presenting the Perpetual Trophy to him at dinner. Sharon will supervise a Free Poker Run with prizes at dessert course. Did you notice FREE? This is not billed as a Fund Raiser as is most Pond Tours but, as a FUN RAISER. Members only and their guests. This is what we do best. OK, and eat. OK, and see nice ponds. OK, and see nice Koi. There will be some very nice ones on this tour. About guests -- This will be an excellent opportunity for you to show off what your club does. Bring a guest and be proud but, realize to be sure we have enough food for everyone we need to know how many to expect so an RSVP is not only good manners but makes good sense. I am looking forward to having an enjoyable day and hope to see you all there.

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FUN RAISER IS MAY 20th -- "Drop Dead" Date is May 16th

It is not a Fund Raiser as CKC Pond Tours have been in the past. It is a "Fun Raiser". We will see superior ponds. We will see superior Koi Show Prize Winning Koi. We will eat superior food. This makes for superior fun. Visiting different ponds, different Koi, different yards, different social contacts is why we joined the club. Show off by bringing guests to see what you do. This is a meeting worth attending. Worth bragging about. Four ponds with a four course meal. No fees, no tickets to buy makes an inexpensive family outing. However, we need to know how many to plan for so an RSVP is needed. Call now. Jerry at (209) 368-9411 has an answering machine. There is an easier way. RSVP to georgiav@earthlink.net so we have an expected head count. After May 16th will be too late as we need to know to plan food and beverage amounts. How about doing it right now, then make some calls to friends, and then add additional RSVPs as needed.



Report from the membership

Marilee - Boy, if you were unable to come with us on the Bay Area Koi Vendor Tour, you missed a great time. Here is what Bob Haugland had to say about it....

Had even more fun Sunday on the koi buying trip to San Jose than I was expecting, and I had high hopes. I even came home with bags of koi and a succulent cutting for the wife. I rode in Marilee's car with Jim and Dan. We talked about everything from High School to Alzheimer's. The group didn't buy any fish from Cherry Hill Koi and Water Garden, but we left with some plants. I even talked him into selling me a cutting from a beautiful succulent he had in his garden.

Champion Koi was a real treat. Great big place with nice clean tanks and lots of fish. Any size and almost any color you want. I say 'almost' because a Benegoi (all red) was tops on my shopping list. Neither Champion or Cherry Hill had a Benegoi. Both admitted that they are somewhat rare. I did buy a 12" Sanke from Champion, Sanke was #2 on my list. The buying experience was great. Tom knew that I was with the club and offered the discount. He double bagged the fish and put it in a box. He wrote 'Sanke' on the box as well as the breeder's name, 'Ogata'. He even took the rebate card I got from Tire Rack. That was late morning and the fish wasn't released from the bag until almost 8pm, and it was none the worse for wear. Then we had lunch at a Chinese Food Buffet, Yummi Buffet, I think. After stuffing ourselves to the gills, we motored over to Genki Koi. Nice little family operated place, but again, no Benegoi. Somebody bought something, but I didn't see what it was because I was busy fooling with the camera.

Our last stop was Tse Koi. Another very large place with lots of tanks and fish, but still no Benegoi. By this time the group was pretty tired and ready to head for the barn. The convoy split up and each car went home. Marilee wanted to stop along the way at a fish store in the neighborhood that she grew up in. She found 'Connies' in Castro Valley very easily since she used to live a half block from the place. As we approached we were surprised to see that there was now a large patio area that sold koi and pond supplies. Dan and I investigated the koi patio while Marilee went into the shop and Jim took a nap in the car. Dan couldn't help himself. He bought two more koi from Connies and I found some Benegoi! There were about 6 or 8 in the tank but all were kin rin (gin rin?)...they had shiny scales. All except one and that's the one I bought. Then we all stacked some more plastic bags into Marilee's car and we really did head home.

AKCA Report

Monthly Report to AKCA from Camellia Koi Club.

May will see Camellia Koi Club Members having a combined Pond Tour / Progressive Dinner Meeting on May 20th. Each course will be served at a different pond setting. This will not be a public event and no tickets will need to be purchased. It will be for members and invited guests only and at private ponds. It is not billed as a fund raiser but as a fun raiser.

Scientific Committee Report

by Jerold Kyle, Director KHA

Plans are being formulated to attend the Annual AKCA Business Meeting in June where the KHA will use the opportunity to present a Lab, Lecture, Question and Answer session for KHA members and invite local area club members to attend to learn and appreciate what KHA is all about.



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April's Bay Area Koi Vendor Tour



We started off at Cherry Hill Koi.



Cherry Hill had a nice selection of water garden plants.



The Kong family was impressed.



Cherry Hill's koi.



Second stop on the tour.



Champion's supply store.



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Through the bag you can see a nice sanke being purchased.



Another fine koi purchased by a club member.



Third stop was Genki Nishikigoi. We were greeted by owner Kevin.



Here was Kevin's first selection.



Jack bought this striking doitsu.



Dan was tempted by this pretty tatagoi.



Last stop was Tse Koi.



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**CKC Progressive Pond Tour
Progressive Lunch and Poker Run!
May20!
One week early because of
Memorial weekend.**

- 11:00 Soup by Sharon at Tran's
- Salad By Betty at Carlson's
- Entrés at Cubillo's by Gus (kabobs) and Jose (enchiladas)
- Dessert at Georgia's by Melody

Please RSVP to Georgia at (916/408-0573 or georgiav@earthlink.net) by **May 15th** so we know how much food to prepare.

Feel free to invite a guest.

Maps and addresses will be available at the Tran's house. Their address is 11 Belladonna Ct., Sacramento, CA 95835

Gus has a map posted on the website

Board of Directors meeting at end of tour

Financial Report April 29, 2012

Beginning Balance	\$8043.42
Expenses	1.17 PayPal
Income	30.00 Membership
Ending Balance	\$8072.25



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Garry's Did You Know?

by Garry Chin

Garry has 2 articles for this month.

Strong Password

Yes, this is off topic from previous installments of Did You Know, but unfortunately it is something that needs to be covered as a club member recently discovered.

The Internet world for the most part is something great as there is much information readily available that in the past took hours, days, weeks, months, etc. to get. The time it takes one to read the first paragraph news can travel around the world several times. News that might be in tomorrow's headlines now is available moments after it happens. Take for example last year's earthquake and resulting Tsunami...It was something that you were able to watch live as it was happening.

Unfortunately, with the "Good" comes some "Bad" in the world of the Internet. There are fraudsters and cyber criminals, who use the Internet for Evil deeds, such as stealing someone's e-mail to send false e-mails about someone known to various people, who supposedly has travelled to another country was robbed, mugged, etc. and that person is now stranded and needs you to send money so that person can get home. Additionally, hackers and identity thieves have altered their methods to extend beyond high-risk sites. They now capture user information from social networking sites and other sites that require personal information.

So how does one lessen the odds of something like this from happening?

One was is the use of a "Strong Password".

Strong Password - A [password](#) that is difficult to detect by both humans and [computer](#) programs, effectively protecting data from unauthorized access. A strong password consists of at least fifteen [characters](#) (and the more characters, the stronger the password) that are a combination of letters, numbers and symbols (@, #, \$, %, etc.) if allowed. Passwords are typically [case-sensitive](#), so a strong password contains letters in both uppercase and lowercase. Strong passwords also do not contain words that can be found in a dictionary or parts of the [user's](#) own name.

If you do not feel you can generate a "Strong Password". There are free "Strong Password" generator programs on the Internet such as <https://secure.pctools.com/guides/password/> that will generate a strong password for you that is from 5-14 (not recommended) 15-64 (recommended) characters long. After selecting the length of the Strong Password, you choose from various options such as Show Phonetics, Include Letters, Include Mixed Case, Include Numbers, Include Punctuation, No similar characters. Then



indicate the number of Strong Passwords to generate and click "Generate Password(s)" button and it'll give you a "Strong Password(s)".

Btw: (s) in https above indicates that the web-site is a secured site using SSL (*Secure Sockets Layer*, a [protocol](#) developed by [Netscape](#) for transmitting private documents via the [Internet](#). SSL uses a [cryptographic](#) system that uses two [keys](#) to [encrypt](#) data). This has been approved by the [Internet Engineering Task Force \(IETF\)](#) as a [standard](#).

A Strong Password is something that can be use anywhere that requires personal information.

My day job is in the field of Information Technology and we have required "Strong Password" for many years now.

So I can speak with authority on this topic from both a Technical and Layman point of view.

Water Hardness

Water hardness is, from a Koi viewpoint, one of the most important aspects of water quality as it affects so many areas of its health. Despite this importance to both Koi health and water quality, it is often a poorly understood subject. Indeed, many Koi hobbyists never check water hardness. This seems particularly true of pond owners to whom it is especially relevant because of the high levels of nitrification taking place in a well-stocked pond.

Water with lots of these minerals is called 'hard', whereas mineral-poor water is called 'soft'. Water hardness is important for two main reasons: firstly (and most importantly), it keeps pH levels stable and relatively high. In any pond, pH tends to get more acid over time – even over 24 hours, natural processes can cause pH levels to change.

By absorbing or releasing acid, depending on whether it's plentiful or scarce, hardness minerals effectively keep pH constant, which is very important to the well-being of the Koi. Because they prevent extreme shocks in pH, the hardness minerals are described as 'buffers', and the level of buffers in the water is called its 'buffering capacity'. As the minerals are used up in the pond, the buffering capacity will decrease over time.

The second reason is that Koi use minerals to make their structures, like scales and bone. Koi kept in water with high hardness levels will have brighter skin, scales and colors (i.e. intensifies the black). Koi kept in softer water will have enhanced red and white.

Water hardness also has a major effect on pH and pH stability. It will affect the toxicity of many common substances, including some fish disease treatments. It also has a major effect on fish osmoregulation, a process you will recall that is vital to fish health.

So what makes water hard?

Water accumulates many dissolved substances before it reaches our taps. Hardness is a measurement of the concentration of divalent metal ions such as calcium, magnesium, iron, and zinc etc., usually acquired as



rainwater percolates through rock. In most water it consists mainly of calcium and magnesium salts, with trace amounts of other metals trace amounts of other metals.

Two types of hardness:

The subject gets a little confusing because there are two types of hardness that we need to consider KH (for carbonate hardness) and the GH (for general hardness).

The pond's KH level (also known as the alkalinity) determines its pH buffering capability, or the ability of a pond to keep itself from becoming too acidic. The pH of a pond is affected by a lot of things (such as plant photosynthesis and the production of acids during nitrification), and can swing in value from time to time. One way to stabilize the pH of a pond is by neutralizing any acids introduced into the pond with carbonate and bicarbonate ions, a process known as buffering.

GH is just the sum of KH and another hardness parameter, the permanent hardness. In a koi pond, the permanent hardness is negligible compared to the KH, so GH and KH may be treated as one for practical purposes. Permanent hardness measures the ions such as nitrates, sulfates, and chlorides etc, that are not removed by boiling. Most of these are not involved with buffering but can affect pH values.

In most water supplies general hardness and alkalinity measurements (as mg/liter CaCO_3) are likely to be very similar because carbonates usually predominate and the amount of permanent hardness is usually fairly small.

While there is a very close connection between water hardness and buffering it should be made clear that hardness is a product of mainly calcium and magnesium ions, while buffering is produced by bicarbonate and carbonate ions. The fact that the two are so closely related is due to the fact that most hardness is formed from calcium and magnesium carbonates.

So, as a rule of thumb, hard water is usually well buffered while soft water is usually less well buffered. However, we should be aware that it is possible, because of different water composition, to have hard water that is poorly buffered, i.e. water where permanent hardness predominates, or soft water that is well buffered, i.e. water that has high levels of sodium or potassium carbonate, rather than calcium or magnesium. Obviously the simple way to establish the makeup of your local water and pond water (they may not be the same) is to test for both types of hardness. Test kits are readily available for measuring both types of hardness.

The carbon dioxide/ bicarbonate/ carbonate buffering system

The initial pH of water is determined by the type of dissolved compounds that it accumulates, although it may well be chemically altered by the water company before it reaches your tap. However, once it is in the pond or aquaria, water pH is also influenced by other factors such as plant and animal respiration and plant photosynthesis. Without some form of buffering these natural activities would cause huge diurnal swings in pH.



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The most common buffering system is the carbon dioxide/ bicarbonate/ carbonate buffering system. Essentially it stabilizes pH by mopping up excess hydrogen ions and then releases them again as levels drop, so that the hydrogen concentration, and therefore the pH, stays fairly constant.



What this equation tells us (from left to right) is that carbon dioxide, excreted by fish and plants, dissolves in water to form carbonic acid (H₂CO₃). If pH levels increase, that is the water becomes more alkaline (say from plant photosynthesis), then the carbonic acid dissociates to form bicarbonate and hydrogen ions (HCO₃⁻ + H⁺). Hydrogen ions are acidic-forming ions and will therefore counteract the alkalinity increase. If the pH continues to increase, the bicarbonate will dissociate to form solid carbonate and release yet more hydrogen ions (CO₃²⁻ (solid) + 2H⁺), to counteract the increased alkalinity. The solid carbonate is the chalk layer covering the pond bottom and walls (or the kitchen kettle). If pH levels start to fall the process is reversed. At a normal pond pH of 7-8 some of all of the above species will be present, with bicarbonate dominating. Carbonate will predominate above pH 9.

The buffering capacity of water depends on the total amount of bicarbonate and carbonate present. Water that has low levels of these ions will quickly exhaust its ability to counteract pH fluctuations.

How much hardness?

Each fish species has its preferred range of water hardness; however it can become confusing as there are several units of measurement currently used to determine water hardness. The most commonly used method measures both alkalinity and general hardness as mg /liter of calcium carbonate (CaCO₃). Very hard water contains greater than 300 mg of calcium carbonate per liter of water while soft water contains less than 75 mg per liter. Koi ponds, according to many Koi experts, should have a water hardness of 100-150 mg CaCO₃ per liter of water, or 100-150 ppm. Another common measurement is German hardness measured as °dH. These compare as seen in the table below.

Typical Water Hardness Ranges		
Water	Calcium carbonate (mg/L)	°dH
Soft	0 - 75	0° - 4°
Moderately Hard	75 - 150	4° - 8°
Hard	150 - 300	8° - 16°
Very Hard	>300	> 16°
	To convert °dH to CaCO ₃ multiply by 17.9	

Koi health and water hardness:

Different species of fish have varied water hardness requirements, so it is important to find out what hardness is best for your fish, for most pond fish, i.e. Koi and goldfish, moderate to hard water is best. From the table above we can see that the optimum hardness range for most pond fish would be between 100 - 300 mg/liter CaCO₃



Water hardness affects Koi health because it influences osmoregulation. Being closed systems, Koi are affected by the makeup of the surrounding water. As a consequence of osmosis, Koi are subject to a continuous influx of water.

Against this continuous movement of water into or out of the body, Koi have to maintain a constant internal body fluid concentration a process called osmoregulation. The greater the difference in concentration between the Koi body fluids and the surrounding water the greater the osmotic effect. As hard water is more concentrated than soft, there will be less difference and therefore less water influx and consequently the Koi will not have to work so hard at osmoregulation. This is particularly important in cases of bacterial ulceration where water can flood into open tissues. As such soft pond water should be avoided because it forces the Koi to exert more effort in osmoregulation, the process of maintaining internal body water concentration to the correct level. Furthermore, a low KH results in pH instability, which can be lethal in extreme cases of pH swing. On the other hand, mineral deposits will form in the pond if the hardness exceeds 150 ppm. Note that some koi experts advise higher hardness levels than this (even up to 300 mg), if only to assist the fish in osmoregulation.

Water hardness and disease treatments:

Some common Koi disease treatments are affected by water hardness, and therefore needs to be considered when calculating dosages. Probably the most sensitive is chloramine-T, which is quite toxic in soft, acidic water.

How do I change water hardness?

First because nitrification is continually removing alkalinity it is important that hardness is monitored on a regular basis say about once a month. There's several ways to raise GH but the easiest way is to add equal amounts of calcium chloride and Epsom salts until you reach the GH level you want. Another option is adding a calciferous source such as crushed oyster shell to the filter or adding more buffers to the water. If alkalinity is too low then add a carbonate buffer. If general hardness is too low then add a calcium or magnesium buffer.

Water to us is but something to drink, take a bath with, or swim in. To our Koi, however, it is what they breathe and live in, what dictates their bodily functions, and ultimately, what determines whether they will live or die. Indeed, Koi pond water quality is something that every Koi enthusiast must never take for granted and hardness does indeed play a vital role.



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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	Lake's Nursery (proposed)
August 26	Annual Club Koi Auction	
September 30	Proposed show in West Sacramento	
October 28	Spaghetti cook-off Challenge	
November 18 (3 rd Sunday)	TBD	
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.



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